THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5366

No. XXII. of Vol. I., 1914.
No. 4735. Vol. CLXXXVI. LONDON, SATURDAY, MAY 30, 1914. Pp. 152—Price 6d.

READY NEXT WEEK. Demy Octavo. Pp. xii. + 630.
Price 12s. 6d. net.

DIETETICS;
OR,
FOOD IN HEALTH AND DISEASE.
INCLUDING A CHAPTER ON
VITAMINES AND DEFICIENCY DISEASES.

By WILLIAM TIBBLES, L.R.C.P.Edin., M.R.C.S.Eng., L.S.A.Lond., LL.D., M.D. (Hon. Causâ) Chicago;
Medical Officer of Health, Melton Mowbray.

London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

NEW EDITIONS.

TWO FAMOUS BOOKS.

10th Edition. 71 Illustrations.	5th Edition. 130 Illustrations.
TAYLOR'S MEDICINE.	HEWLETT'S BACTERIOLOGY.
18s. net.	10s. 6d. net.

London: J. & A. Churchill, 7, Great Marlborough-street.

BOOKS BY SYDNEY STEPHENSON,
D.O. (Oxon.)

EYE-STRAIN IN EVERYDAY PRACTICE.
1913. Price 3s. 6d. net.
The Ophthalmoscope Press, 24-26, Thayer-street, W.

OPHTHALMIC NURSING.
Third edition. 1912. Price 3s. 6d. net.
The Scientific Press, Southampton-street, Strand, W.C.

By JAMES FORREST, M.B., Ch.B.

EYE, EAR, NOSE and THROAT.
412 pages, 122 Illustrations, 12 Plates. Price 10s. 6d. net.
Henry Kimpton, 263, High Holborn, London, W.C.

Second Edition. Royal 8vo, pp. x+1262. With 36 Illustrations. 30s. net.

MANUAL OF TOXICOLOGY.
By R. A. WITTHAUS, M.A., M.D.,
Professor of Toxicology and Medical Jurisprudence in Cornell University.
"The general plan of the book is excellent. It is thorough-going, and ranks high amongst the standard books of reference on the subject."—THE LANCET. London: Baillière, Tindall & Cox.

Now Ready. viii.+280 pp. Price 5s. net. With original Photographs and 143 special Prescriptions.

TREATMENT OF DISEASES OF THE SKIN.
By KNOWSLEY SIBLEY, M.D. Camb.
London: Edward Arnold, 41 and 43, Maddox-street, W.

THE CARE OF THE SKIN IN HEALTH
A STUDY IN PREVENTIVE MEDICINE.

By W. ALLEN JAMIESON, LL.D., M.D., F.R.C.P.E.

Price 2s. 6d. net.

Henry Frowde & Hodder & Stoughton,
Oxford Press Warehouse, Falcon-square, E.C.

8vo, 12s. 6d. net. Stereoscope, 2s. 6d. net.

RHINOLOGY: A TEXT-BOOK OF THE DISEASES OF THE NOSE AND ACCESSORY SINUSES.
47 Plates and 146 Illustrations.
By P. WATSON-WILLIAMS, M.D. Lond.,
Lecturer on Diseases of Ear, Nose and Throat, University of Bristol, and in Charge of Ear, Nose and Throat Department, Bristol Royal Infirmary.
Longmans, Green & Co., 39, Paternoster-row, London, E.C.

By ERNEST CLARKE, M.D., B.S., F.R.C.S.Eng.,
Senior Surgeon to the Central London Ophthalmic Hospital; Consulting Ophthalmic Surgeon to the Miller General Hospital.

ERRORS OF ACCOMMODATION AND REFRACTION OF THE EYE.
Third Edition. Pp. x. + 228. With 86 Illustrations and Coloured Plates. Price 5s. net.
"This volume is the very best of the class that goes into everything with care and thoroughness. ..... The book merits the highest commendation."—CANADA LANCET.
London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

BONESETTING and the TREATMENT of PAINFUL JOINTS.
By FRANK ROMER, M.R.C.S., L.R.C.P., and
L. ELIOT CREASY, M.R.C.S., L.R.C.P.
Crown 8vo, 1s. net.
"Messrs. Romer & Creasy strip this branch of practice of the cloud of mystery and miracle which has been thrown around it by interested people and well-meaning, but ignorant supporters. They effectually disprove the foolish charge that the medical profession has wilfully ignored the subject, and they have dealt with it in an unprejudiced spirit. Moreover, they bear witness to the fact that the profession keeps an open mind as to everything connected with the treatment of disease and the relief of pain and physical disability, and is willing to learn from any source anything that may seem likely to be useful for these purposes."—BRITISH MEDICAL JOURNAL.
James Nisbet & Co., Limited, 22, Berners-street, W.

OUT TO-DAY.

CLINICS of JOHN B. MURPHY, M.D.
APRIL ISSUE.
A NEW FEATURE PRESENTED IN THIS NUMBER.

See Saunders' Advertisement on Page 3.

THE FOOD FACTOR in DISEASE, including
the Pathology and Treatment of Bilious Attacks, the Paroxysmal Neuroses (Migraine, Asthma, Angina Pectoris, &c.) Gout, High Blood-pressure, &c. By FRANCIS HARE, M.D., Consulting Physician, Brisbane Hospital. For abstract see THE LANCET review, Feb. 17th, 1906, pp. 534 to 536.—Longmans, Green & Co. In two volumes. Price 30s. net.

Baillière, Tindall & Cox. Price 5s. net.

THE MORPHIA HABIT.
By DR. OSCAR JENNINGS.
"The recognised authority."—MEDICAL PRESS AND CIRCULAR.
"A work which no student of drug addiction can afford to neglect."—JOURNAL INEBRIETY.

Just Published. Price 1s. net.

THE THERAPEUTIC VALUE of the POTATO
in TREATMENT of GOUT, RHEUMATISM, SYNOVITIS, &c.
By HEATON C. HOWARD, L.R.C.P. Lond.
London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

By J. S. KELLETT SMITH, F.R.C.S.Eng.

LATERAL SPINAL CURVATURE AND FLAT FOOT, AND THEIR TREATMENT BY EXERCISES.
"We may say at once that he has carried out his ideas admirably..... This is eminently a book suited for the general practitioner wishful to treat the slighter forms of scoliosis or pes planus."—LANCET.
5s. 6d. net. 82 Illustrations. Bristol: J. Wright & Sons, Ltd.

Now Ready. Crown 8vo. 5s. net.

SYNOPSIS OF MIDWIFERY.
By ALECK W. BOURNE,
B.A., M.B., B.C. Camb., F.R.C.S. Eng.
"An attempt to set the principal points in obstetrics before students preparing for qualifying midwifery examinations in a simple and concise manner."—*From Preface.*
Bristol: John Wright & Sons Ltd.
London: Simpkin & Co. Ltd.

Third Edition. Pp. viii.+134. With 22 Illustrations. Price 3s. 6d. net.

ANÆSTHETICS. By J. BLUMFELD, M.D.,
Senior Anæsthetist to St. George's Hospital.
"A truly excellent manual."—LANCET.
"Dr. Blumfeld's handbook of anæsthetics leaves little to be desired. It is packed with useful information and practical hints."—BRIT. M. J.
London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

BY C. MANSELL MOULLIN, M.D. Oxon.,
F.R.C.S., Consulting Surgeon to the London Hospital.
Fourth Edition.
ENLARGEMENT of the PROSTATE. Price 6s.
THE BIOLOGY OF TUMOURS, BRADSHAW LECTURE, 1912. Price 2s. net.
London: H. K. Lewis, 136, Gower-street.

WHEN to OPERATE in INFLAMMATION of the APPENDIX.
Third Edition now ready. Price 2s. 6d.
London: J. Bale & Danielsson Ltd., 83-89, Gt. Titchfield-street.

By Royal Warrant

To H.M. King George V. To H.M. Queen Alexandra.

Holders of Royal Warrant during three successive Reigns

Jeyes' Disinfectants

JEYES' FLUID (Safe and Efficient)—In Bottles, Tins, Drums and Casks.

JEYES' POWDER—In Canisters, Packets, Bags and Casks.

JEYES' SOAPS—In Bars and Tablets, for the Household and Toilet.

JEYES' SPECIAL FLUID—CYLLIN—The strongest Germicide on the Market.

JEYES' CYLLIN SOAP (Bars) for Hospital use.

CYLLIN (MEDICAL).

Rideal-Walker Co-efficient for B. typhosus. 24 to 26. Indispensable in Hospital and Private Practice.

CYLLIN MEDICAL CAPSULES (Palatinoids).

Containing 3 m. each, are small, easily swallowed, and give excellent results in stomachic and intestinal antisepsis.

In bottles of 25, 50, and 100.

Jeyes' Sanitary Compounds Co., Ltd., 64, Cannon Street, London, E.C.

THE PERFECT SHAVING STICK

IN THE ALUMINIUM CASE

"SOLACE"

Pure, Antiseptic, Solidified Cream, giving a lather that is flat, silky, and lasting.

Price 9d. *Makers:* **COOK'S, LONDON.**

Soap Makers to His Majesty the King.

"Sauermilch"

THE PREMIER Lactic Acid or Soured Milk Preparation.

Prepared in our own Milk Laboratories under the direct control of a skilled bacteriological staff

WELFORD & SONS Dairy Company), Ltd.

Chief Offices and Milk Laboratories : : : ELGIN AVENUE, LONDON, W.

Principal Telephone: "Paddington 5440" (2 Lines). Telegraphic Address: "Welfords, London

THE LANCET.

No. 4735. Vol. CLXXXVI. LONDON, SATURDAY, MAY 30, 1914. Pp. 152.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

THE ANNUAL ORATION on the Surgical Treatment of Infantile Paralysis. Delivered before the Medical Society of London on May 18th, 1914, by ROBERT JONES, Ch.M. Liverp., F.R.C.S. Irel., F.R.C.S. Edin., Lecturer on Orthopædic Surgery at the University of Liverpool..... 1515

ORIGINAL ARTICLES.

Intrinsic Cancer of the Larynx: Complete Excision Apparently Effected by Endolaryngeal Operation. By Sir STCLAIR THOMSON, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng., Professor of Laryngology and Physician for Diseases of the Throat in King's College Hospital. —(*Illustrated*)..... 1523

A Note on a Method by which Remedial Agents may be Mingled with the Cerebral Cerebro-spinal Fluid. By CHARLES A. BALLANCE, M.V.O., M.S. Lond., F.R.C.S. Eng., Surgeon to St. Thomas's Hospital and to the West End Hospital for Nervous Diseases, &c. — —(*Illustrated*)..... 1525

The Treatment of Parenchymatous Syphilis by Intracranial Medication. By HARRY CAMPBELL, M.D. Lond., F.R.C.P. Lond., Physician to the West End Hospital for Diseases of the Nervous System, &c..... 1529

The Intrathecal Injection of Salvarsanised Serum. By GORDON W. SPENCER, B.A., M.B., B.C. Cantab., House Physician, Bristol Royal Infirmary..... 1531

The Occurrence of Ascites of a Non-Tuberculous Origin in Chronic Recurrent Diarrhœa in Childhood. By F. J. POYNTON, M.D. Lond., F.R.C.P. Lond., Senior Physician to Out-patients, University College Hospital, and Hospital for Sick Children, Great Ormond-street; and HUGH PATERSON, M.D. Edin., Medical Registrar and Pathologist, Hospital for Sick Children, Great Ormond-street..... 1533

An Operation for Undescended Testicle. By RALPH THOMPSON, Ch.M. Vict., F.R.C.S. Eng., Surgeon in Charge of the Genito-urinary Department, Guy's Hospital; Surgeon to the Victoria Hospital for Children.—(*Illustrated*)..... 1535

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE: SECTION FOR THE STUDY OF DISEASE IN CHILDREN:—Exhibition of Cases.—Auricular Flutter in Acute Rheumatic Carditis..... 1535
SECTION OF OBSTETRICS AND GYNÆCOLOGY:—Election of Officers.—Exhibition of Specimens and Cases.—The Etiology of Eclampsia 1536

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND: Early Nervous and Mental Cases..... 1537

EDINBURGH MEDICO-CHIRURGICAL SOCIETY: Exhibition of Cases..... 1538

EDINBURGH OBSTETRICAL SOCIETY: Stillbirths Registration..... 1539

ROYAL ACADEMY OF MEDICINE IN IRELAND: Congenital Pyloric Stenosis 1541

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY: Experimental Proof of the Value of a Mask over the Surgeon's Mouth during Operations..... 1542

ULSTER MEDICAL SOCIETY: Experimental Production of Heart-block..... 1542

GLASGOW MEDICO-CHIRURGICAL SOCIETY: Exhibition of Cases, &c..... 1542

REVIEWS AND NOTICES OF BOOKS.

La Geographia Medica de la Peninsula Iberica. By Dr. Ph. Hauser..... 1543

Handbuch der Tuberkulose. In fünf Bänden. Herausgegeben von L. Brauer, G. Schröder, F. Blumenfeld.... 1544

Defective Ocular Movements and their Diagnosis. By E. and M. Landolt (Paris)..... 1544

Manual of Obstetrics. By John Osborn Polak, M.Sc., M.D... 1544

Materia Medica, Pharmacology, Therapeutics, Prescription Writing, for Students and Practitioners. By W. A. Bastedo..... 1545

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. Studies on the Mouth Parts and Sucking Apparatus of the Blood-sucking Diptera. By Captain F. W. Cragg, M.D., I.M.S.... 1545

Physiological Histology of Man and Mammalian Animals. By Professor Dr. Fr. Sigmund..... 1546

A Digest of the Law and Practice Relating to Local Government in England and Wales (including London). By Arthur D. Dean, F.L.G.A., and E. J. Rimmer 1546

Lectures on Medical Diseases for Nurses. By David Forsyth, M.D., D.Sc. Lond., F.R.C.P. Lond..... 1546

Notes on Midwifery, especially for Midwives. By C. F. Lassalle, M.D., C.M. Edin., D.P.H. Oxon..... 1546

Journals and Magazines..... 1546

NEW INVENTIONS.

Perforating Forceps for Ligamentary Suspension Operations upon the Uterus.—(*Illustrated*)..... 1547

LEADING ARTICLES.

CANCER HOUSES..... 1549

SUBARACHNOID MEDICATION FOR CEREBRO-SPINAL SYPHILIS..... 1550

ANNOTATIONS.

The Treatment of Infantile Paralysis..... 1551

The Historical Medical Museum..... 1552

The Essential Features of Acidosis..... 1552

The Hardships of Hard Water 1553

The Application of Abderhalden's Reaction to the Study of Nervous and Mental Disease..... 1553

The Investigation of Ozæna... 1554

An Early Medical Review..... 1554

A New Preparalytic Symptom in Acute Poliomyelitis..... 1555

The Pharmaceutical Society... 1556

Appendicitis and Lead Poisoning due to Ingestion of Shot 1556

The Library of the Surgeon-General's Office, United States Army..... 1556

The Pasteurisation of Milk in New York..... 1556

VITAL STATISTICS:
Health of English Towns ... 1562
Health of Scotch Towns..... 1562
Health of Irish Towns..... 1562
Analysis of Sickness and Mortality Statistics in London during April, 1914..... 1563
Vital Statistics of London during April, 1914..... 1564

SPECIAL ARTICLES.

The Report of the Inter-Departmental Committee on Sleeping Sickness..... 1547

Medicine and the Law..... 1557

A New Water Reservoir at Southend.—(*Illustrated*)..... 1558

A General Tuberculosis Scheme for London..... 1559

The Infectivity of Pulmonary Tuberculosis: The Statement by the Royal College of Physicians of London..... 1561

Royal Commission on Venereal Diseases..... 1561

The Services..... 1564

HOME AND FOREIGN NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Manchester..... 1566
Scotland..... 1566
Ireland..... 1567
Paris..... 1568
Berlin..... 1569

CORRESPONDENCE.

The Plea for Immediate Operation in Appendicitis (Sir George Thos. Beatson) 1570

Massive Collapse of the Lungs (Dr. William Ewart)..... 1570

Re-education of the Deaf (Dr. W. G. Porter)..... 1570

The Abderhalden Test for Pregnancy and the Commencement of Gestation (Dr. James Oliver)..... 1571

Phagocytic Treatment of Diseases of the Eye and Ear (Dr. John P. Henry)..... 1571

Congenital Defect of the Ulna (Dr. Arthur G. Wilkins)..... 1572

Thyroid Extract in Nervous Disorders (Dr. Charles W. Crawshaw)..... 1572

Epidemic Jaundice among School Children..... 1573

A Case of Bee-sting (Mr. Lawrence Pick)..... 1585

Carbolic Acid Injections in Tetanus (Dr. F. Carden Brodie)..... 1586

THE GENERAL MEDICAL COUNCIL.

President's Address 1573
Assistant Examiners 1576
Medical Reciprocity with Newfoundland and New Brunswick 1576
The Finance Report..... 1576

OBITUARY.

Sir Francis Laking, Bart., G.C.V.O., K.C.B., M.D. Heidelb., LL.D. Aberd., M.R.C.P. Lond., Physician-in-Ordinary and Surgeon-Apothecary to His Majesty, &c.—(*With Portrait*)..... 1577

Philip Henry Pye-Smith, M.D. Lond., Hon. M.D. Dub., F.R.C.P. Lond., F.R.S., Consulting Physician to Guy's Hospital.—(*With Portrait*)... 1578

THE NATIONAL INSURANCE ACT.

The Society of Apothecaries and Unqualified Practice..... 1579
London Panel Committee..... 1579
A Friendly Society and the Act 1579
Elgin and Nairn Insurance Committee..... 1579
Hull Insurance Committee..... 1580
Fife Panel Doctors..... 1580

MEDICAL NEWS.

Post-Graduate College, West London Hospital..... 1529
Birmingham General Hospital 1547
St. Luke's Hospital, Peking.... 1556
Central Midwives Board..... 1556
Donations and Bequests..... 1561
British Hospital for Mothers and Babies..... 1565
Fourteenth French Congress of Medicine..... 1565
Meetings of Canadian Medical Societies..... 1569
Royal College of Surgeons of England..... 1573
Poor-law Medical Officers' Association of England and Wales 1576
University College, London.... 1580
King Edward VII.'s Hospital, Cardiff 1580
Hospital for Nervous Diseases, Belfast 1580
University of Cambridge: Degrees conferred..... 1580
Society of Apothecaries of London: Pass-list..... 1580
St. Thomas's Hospital: Annual Prize Distribution..... 1580
Royal Sanitary Institute..... 1580
Portsmouth Radium Fund..... 1580
Kingseat Asylum Extension... 1580
A "Royal" Infirmary for East Lancashire 1580
Medical Sickness and Accident Society 1580
Presentation to a Medical Man 1580
Northern Association of Medical Women..... 1581

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics..... 1581
House of Commons..... 1581

Books, &c., received..... 1583
Appointments 1583
Vacancies..... 1583
Births, Marriages, and Deaths 1584
Notes, Short Comments, and Answers to Correspondents 1585
Medical Diary..... 1586

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

ARNOLD:—
Bisley ..... Treatment of Diseases of the Skin .. Cover 1

BAILLIERE, TINDALL & COX —
Bigg ..... Indigestion, &c. 6
Eisenfeld .. Anæsthetics .. Cover 1
Clarke, E. .. Errors of Accommodation, &c. .. Cover 1
Howard .... The Potato in Treatment of Gout Cover 1
Jennings .. Morphia Habit Cover 1
Tibbles .... Dietetics ..... Cover 1
Whitham .. Toxicology .... Cover 1

BALE, SONS & DANIELSSON:—
Moullin .... When to Operate in Inflammation of the Appendix.... Cover 1

CASSELL & CO.:—
Morris, Sir M..... Diseases of the Skin 6

CHURCHILL, J. & A.:—
Hewlett .... Bacteriology .. Cover 1
Taylor .... Medicine ..... Cover 1

FROWDE AND HODDER & STOUGHTON:—
Cunningham's Manual of Practical Anatomy 7

PAGE

FROWDE, &c.—(Continued).
Cunningham's Text-Book of Anatomy 7
Jamieson .. The Care of the Skin in Health.... Cover 1
Lockwood .. Cancer of the Breast. 6
Waring .... Surgical Diseases of Gall Bladder, &c. .. 6
" .... Operative Surgery .. 6

KIMPTON:—
Forrest .... Eye, Ear, Nose and Throat..... Cover 1

LEWIS:—
Moullin .... Enlargement of the Prostate .... Cover 1
" .... The Biology of Tumours .... Cover 1

LONGMANS, GREEN & CO.:—
Cheyne, Sir W., & Burghard. Surgical Treatment.. 5
Gray's Anatomy 5
Halliburton Chemical Physiology 5
Hare ..... Food Factor in Disease ..... Cover 1
Herschell & Abrahams Chronic Colitis 5
Kaye ..... X Rays 5
Notter & Firth .... Hygiene 5

PAGE

LONGMANS—(Continued).
Notter & Firth .... Practical Domestic Hygiene 5
Watson-Williams. Rhinology .... Cover 1

MACMILLAN & CO.:—
Ballance .. Cerebral Decompression in Ordinary Practice 6

MEDICAL PUBLISHING CO.:—
Lane, Sir W. A.. Operative Treatment of Fractures 6
" Cleft Palate and Hare Lip 6

MURRAY:—
Cropper & Drew .... Researches into Induced Cell-Reproduction 6

NISBET & CO.:—
Lane, Sir W. A.. Treatment of Chronic Constipation 6
Romer & Creasy .. Bonesetting and the Treatment of Painful Joints.... Cover 1

PAGE

OPHTHALMOSCOPE PRESS:—
Stephenson. Eye-Strain in Everyday Practice. Cover 1

SAUNDERS COMPANY:—
Clinics of John B. Murphy, M.D. Cover 1
April Murphy's Clinics 3

SCIENTIFIC PRESS:—
Stephenson. Ophthalmic Nursing Cover 1

UNIVERSITY OF LONDON PRESS:
Bidwell .... Minor Surgery 6
Cole ..... Mental Diseases 6
Fox ..... Waters and Baths .. 6
Stevens .... Diseases of Women .. 6

WRIGHT & SONS (BRISTOL):—
Bourne .... Synopsis of Midwifery Cover 1
Smith..... Lateral Spinal Curvature and Flat Foot Cover 1

MEDICAL LIBRARIES, &c.:—
Behnke—Stammering 6
Ketley—Stammering 6
Matthews Bros.—Wood: Application of Trusses 6

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Bedford County Hospital 62
Belgrave Hospital for Children ... 65
Birmingham Central Tuberculosis Dispensary 67
Birmingham City Fever Hospital. 63
Birmingham General Dispensary.. 65
Birmingham Union—Dudley-road Infirmary 66
Birmingham Yardley-road Sanatorium 67
Birmingham and Midland Eye Hospital 65
Borough Hospital, Birkenhead 67
Boston Rural District Council 65
Bradford Royal Infirmary 68
Bristol Royal Infirmary 62
Bury Infirmary 61
Central London Ophthalmic Hospital 63
Central London Throat and Ear Hospital 65
Chesterfield and North Derbyshire Hospital 66
City of Bradford Hospital 64
City of London Hosp. for Diseases of the Chest 68
City of London Lying-in Hospital. 63
City of Nottingham Infirmary 62
County Asylum, Whittingham 63
County Borough of Bournemouth Education Committee 63
County Borough of Huddersfield.. 67
County Borough of Southport Education Committee 64
County Borough of Wolverhampton Education Committee 66
County Council of Middlesex 67
Cumberland County Council 67
Durham County Hospital 65
East London Hosp. for Children, &c., Shadwell 63
Eccles and Patricroft Hospital .. 69
Elder Dempster & Co., Liverpool.. 66
Essex Education Committee 64
Evelina Hospital for Sick Children 66
Fr nch Hos., Shaftesbury-avenue. 61
General Infirmary, Macclesfield .. 65
Glan Ely Tuberculosis Hos., Cardiff 68
Hampshire County Council .. 62, 68
Hants County Asylum, Fareham.. 63
Herts County Asylum, St. Albans. 67
Hospital for Sick Children, Great Ormond-street 66
Hospital for Women, Soho-square 64
Hull Royal Infirmary 66
Hulme Dispensary, Manchester .. 62
Jenny Lind Hospital for Sick Children, Norwich 67
Jessop Hos. for Women, Sheffield. 67
Kent County Asylum, Waldstone.. 61
Kent and Canterbury Hospital .. 67
King Edward VII.'s Hos., Cardiff. 65
Leeds Public Dispensary 63
London Fever Hospital 63
London Homœopathic Hospital, Great Ormond-street 64
London Lock Hospital 65
Manchester Ear Hospital 64
Manchester Northern Hospital for Women and Children 63
Manchester Royal Infirmary 67
Mens House Hotel, Cairo 66
Monsall Fever Hospital 66
National Hospital for Diseases of the Heart 64
Newark upon Trent Hospital 61
North Lonsdale Hospital, Barrow-in-Furness 62
North Ormesby Hospital, Middlesbrough 61

APPOINTMENTS—(Continued).
Nottingham General Hospital..... 62
Notts County Council 66
Paddington Green Children's Hospital 67
Paddington Infirmary 62
Plaistow Fever Hospital 63
Portsmouth Workhouse Infirmary 66
Public Health Department of Egypt 62
Queen's Hospital for Children, Hackney-road 63
Queen's University, Kingston, Canada 62
Rochdale Infirmary & Dispensary. 61
Rotherham Hospital 63
Royal Albert Hospital, Devonport 61
Royal Albert Edward Infirmary and Dispensary, Wigan 61
Royal Dental Hospital of London. 63
Royal Halifax Infirmary 63
Royal Hospital for Diseases of the Chest, City-road 67
Royal Infirmary, Sheffield 65
Royal Infirmary, Sunderland..... 63
Royal Sussex County Hospital, Brighton 67
Rural District Council of Auckland 66
St. Mark's Hospital for Cancer.... 67
Salford Royal Hospital 66
Salford Union Infirmary 64
Salisbury Infirmary 61
Salop Infirmary, Shrewsbury 61
Salvation Army Mothers' Hosp.. 63
Sheffield Union Hospital 66
Southwark Union Infirmary 65
Swansea General and Eye Hosp... 61
Township of South Manchester Hospitals 64
University of Aberdeen 67
University of Durham College of Medicine, Newcastle-upon-Tyne. 63
University of London 63
University of Otago, New Zealand 61
Victoria Hospital, Burnley 65
West Ham and Eastern General Hospital 61
West Herts Hospital, Hemel Hempstead 61
West London Hospital, Hammersmith-road 62
West Norfolk and King's Lynn Hospital 65
Western Ophthalmic Hospital, Marylebone 63, 70
Westminster Hospital 65
Wolverhampton and Midland Counties Eye Infirmary 64
York Dispensary 67

ASSISTANCIES, MEDICAL..... 68

ASYLUMS, HOMES, &c.:—
Ashwood House, Kingswinford .. 51
Association of Medical Men Receiving Resident Patients 60
Barnsley Hall, Bromsgrove..... 51
Barnwood House Hospital 52
Bishop-stone House, Bedford 51
Bootham Park, York 51
Brunton House, Lancaster 60
Buntingford House Retreat, Buntingford 55
Camberwell House, Peckham-road 54
Cheadle Royal 52
City of London Mental Hospital, Stone 61
Clarence Lodge, Clapham Park ... 51
Colthurst House, Alderley Edge .. 52
Coppice, The, Nottingham 52
Dalrymple House, Rickmansworth 54
Davidson, Wells-on-Sea..... 61

ASYLUMS—(Continued).
Duff House, Banff..... 58
Edgar Allen Institute, Sheffield .. 57
Elliot, Southwell 61
Farnham House, Dublin 55
Ghyllwoods 55
Grove House, Church Stretton 52
Grove, The, Catton, Norwich..... 52
Haslemere Nursing Home 60
Haydock Lodge, Newton-le-Willows 53
Haynes, Brentwood 61
Heigham Hall, Norwich 51
Home for Epileptics, Maghull 52
Inverurith Sanatorium, Colinsburgh 55
Kingsdown House, Box..... 51
1915, Kingsway 61
Kisselbach, Bad Nauheim 60
Lloyd, Regent's Park 61
London Fever Hospital 63
London Sanatorium..... 55
Malling Place, Kent 53
Maryville, Dublin 55
Melbourne House, Leicester 60
Mendip Hills Sanatorium 56
Middleton Hall, Co. Durham 51
Moat House, Tamworth 52
Mundesley Sanatorium 52
Newlands House, Tooting Bec Common 51
Newmains Retreat, Lanarkshire.. 55
New Saughton Hall, Polton, Midlothian 53
Nordrach-on-Dee, Banchory 56
Northumberland House, Finsbury Park 54
North Woods House, Winterbourne 55
Norwood Sanatorium, Ltd..... 55
No. 898, L.O., Strand 60
No. 912, L.O., Strand 60
No. 944, L.O., Strand 61
Ochil Hills Sanatorium..... 70
Osea Island, Heybridge..... 54
Otto House, West Kensington 51
Peckham House..... 54
Pendyffryn Hall Sanatorium, Nordrach-in-Wales 55
Pinewood Sanatorium, Wokingham 58
Plympton House, Plympton 52
Portsmouth Corporation Mental Hospital 51
Royal Earlswood Institution for Mental Defectives 54
St. Andrew's Hospital, Dollis Hill 60
St. Andrew's Hosp., Northampton 52
St. George's Retreat, Burgess Hill 51
St. Luke's Hospital for Mental Diseases 51
Springfield House Private Asylum, Bedford 54
Stretton House, Church Stretton.. 52
The General Manager, Craven-st.. 59
The Grange, near Rotherham 59
Vale of Clwyd Sanatorium 58
Warneford Asylum, Oxford..... 51
Wye House, Buxton..... 52

FINANCIAL, &c.:—
Equitable Reversionary Interest society..... 48

HEALTH RESORTS, BATHS, &c.:—
Alexandra Therapeutic Institute.. 50
Andermatt 58
Bad Neuenahr..... 60
Bad Wildungen 59
Baden, Switzerland 58
Badgastein 60
Leukerbad 58
Royal Ems..... 59

HEALTH RESORTS—(Continued).
St. Moritz, Engadine 59
Smedley's, Matlock 50
Wildbad 60

HOMES WANTED:—
311 E., Birmingham 60

HOTELS:—
Hotel Windsor 58

HOUSE & ESTATE AGENTS:—
Bedford & Co., Wigmore-street.... 69
Bullock, Gillingham 70
Elliott, Son & Boyton, Vere-street 69
Gambling, Great Yarmouth 70
Ley Clark, Wimpole-street 70
No. 945, L.O., Strand 70
CONSULTING-ROOMS:—
Elgood & Co., Wimpole-street 70
No. 955, L.O., Strand 70

LIFE & FIRE ASSURANCES, &c.:—
General Life Assurance Co. 48
National Provident Institution .. 48
Prudential..... 48

MASSAGE:—
Associated Male Nurses and Masseurs 50
London School of Massage 50
School of Massage and Swedish Remedial Exercises..... 50

MEDICAL ACCOUNTANTS, &c.:—
Turner 69

MEDICAL AGENTS:—
Fieldhall, Limited..... 70
Johnson 72
Manchester Clerical, &c., Assoc... 72
Medical Agency 73
Needes, Herbert..... 70
Needes, J. C. 75
Peacock & Hadley..... 72
Scholastic, Clerical, &c., Association.. 71
Turner 72

MEDICAL SCHOOLS:—
(LONDON.)
London School of Clinical Medicine 46
West London Post-Graduate Coll.. 46

NURSING INSTITUTES:—
Army and Navy Male Nurses Co-operation 48
Certificated Nurses Association .. 49
Co-operation of Temperance Male and Female Nurses 49
General Nursing Association..... 50
Hospital for Sick Children, Great Ormond-street 50
Leeds Trained Nurses' Institution 50
London Nurses' Association 49
London Temperance Male and Female Nurses Co-operation .. 49
Male Nurses Temperance Co-operation..... 48
Mental Nurses' Co-operation..... 50
New Mental Nurses' Co-operation 50
Nurses' Co-operation, Portland-place 48
St. John's House 50
St. Luke's Hospital 50
Temperance Association of Male Nurses, Ltd. 50
Temperance Male Nurses Co-operation 49
Temperance Male and Female Nurses Co-operation 49
The Retreat, York 49

For continuation of Index to Official and General Announcements, and Trade and Miscellaneous Advertisements, see page 4.

April Murphy's Clinics

INAUGURATING A NEW FEATURE—SURGICAL DIAGNOSIS

This April number inaugurates the series of articles on *Surgical Diagnosis* to appear in each number from now onwards. In a year or two the subscriber will thus have at his command *a practical work on surgical diagnosis by Dr. John B. Murphy.* The diagnostic article in this number gives, first of all, a talk on diagnosis in general—what constitutes a surgical diagnosis. Dr. Murphy's methods of diagnosing *empyema* are then detailed. Following is an article on the *Abderhalden test*—its significance and value in the *diagnosis of tubal pregnancy.* Then comes an article on the *differential diagnosis between primary and secondary anæmias.* In addition, the diagnosis is given of each condition presented—and this number covers a wide range of subjects, among which are the following:—

Ectopic Testes—the technique of removing the testes from their abnormal position and transplanting them into the scrotum.

Vesical Papillomata—giving a complete discussion and the *fulguration treatment* with the aid of the cystoscope. An extremely instructive article.

Tuberculosis of the Kidney—the diagnosis of the condition and the technique of the operation, showing each step in the operation by *striking illustrations.*

Amputation Neuroma with Ascending Neuritis—an extremely instructive case, previously operated upon three times without relief from pain. Includes a full discussion of the *neurologic phase* as well as the operation that gave relief.

Pancreatic Cyst—giving the *medical side.* The differential diagnosis is wonderfully illuminating and quite exhaustive.

Goiter—including eight illustrations showing the *arterial supply* of the region. The operative technique is clearly outlined in Dr. Murphy's forceful style.

Duodenal Ulcer—giving the *medical side* and the exact technique of Dr. Murphy's button operation.

Cholecystitis and Cholecystectomy—including concise descriptions of Dr. Murphy's *hooked-finger and perpendicular-finger percussion tests* for differentiating distended gall-bladder, urinary calculus, and appendicitis. These diagnostic tests can be used at the bedside without instruments or delay.

Issued serially, one number every other month (six numbers a year). Each number about 175 octavo pages, illustrated. Per year, 35s.; in cloth, 50s. Sold only by the calendar year.

Send to-day for a descriptive circular

W. B. SAUNDERS COMPANY, 9, Henrietta St., Covent Garden, London.

INDEX—(CONTINUED).

PAGE

OFFICIAL NOTICES:—
Central London Throat, Nose and Ear Hospital ... 46
City of London Lying-in Hospital ... 46
Epsom College ... 47
Federation Abolitioniste Internationale ... 47
Hospital for Sick Children ... 46
London School of Tropical Medicine ... 46
Medical Graduates' College and Polyclinic ... 46

PAGE

OFFICIAL NOTICES—(Continued).
Medico-Psychological Association of Great Britain and Ireland ... 46
Middlesex Hospital ... 47
Queen Charlotte's Lying-in Hos. ... 46
Royal College of Physicians ... 47
Royal Eye Hospital, Southwark ... 47
Royal Surgical Aid Society ... 47
Throat Hospital, Golden-square ... 46
University of Cambridge ... 47
West End Hospital for Diseases of Nervous System ... 47

PAGE

PARTNERSHIPS & PRACTICES:—
Arnold & Sons, Giltspur-street ... 69
Blundell & Rigby, Strand ... 69
Denmark, Langenberg ... 69
Griffiths, Newport ... 69
Lee & Martin, Birmingham ... 69
M.D., Stroud Green ... 69
Turner ... 69
X., Blackburn ... 69

RAILWAY & STEAMSHIP CO.'S:—
New Zealand Shipping Co. ... 43

PAGE

SCHOOLS, PREPARATORY, &c.:—
British and Foreign Schools Agency, Manchester ... 43
Institution Notre Dame, La Ferté-Macé ... 47

TUTORS & LECTURERS:—
Carter ... 43
Med. Corres. College ... 47
Schnelle ... 6
Mueller-Walle System of Lip Reading ... 7
Weymouth ... 43

TRADE AND MISCELLANEOUS ADVERTISEMENTS

AMBULANCES:—
St. John Ambulance—
Invalid Carriages ... 70

BOTTLE MERCHANTS:—
Isaacs ... 40

CARRIAGES, MOTORS, &c.:—
Armstrong—
Coachmen's, Grooms', and Chauffeurs' Liveries ... 70
Clement Talbot, Ltd.—
Invincible Talbot ... 9
Morgan & Co.—
Morgan-Adler Carette ... 8

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Bynin Amara ... 35
Anglo-American Pharmaceutical Co.—
Huxley's Syrup Formates with Glycero-Phosphates ... 18
Antikamnia Chemical Co.—
Antikamnia ... 22
" & Codeine Tablets 22
Armbrecht, Nelson & Co.—
Radium Emanation Water ... 18
Benger's Food, Ltd.—
Liquor Pepticus ... 38
" Pancreaticus ... 38
Peptonising Powders ... 38
Bristol-Myers Co.—
Sal Hepatica ... 18
British Organotherapy Co., Ltd.—
Ovamammoid Compound ... 19
British Oxygen Co.—
Oxygen ... 16
Bullock & Co.—
Pepsina Porci ... 16
Acid Glycerine of Pepsine ... 16
Carnrick & Co.—
Liquid Peptonoids ... 35
Christy & Co.—
Glyco-Thymoline ... 26
Ergoapiol ... 12
Cook & Co.—
Solace Shaving Soap .. Cover ii
Cordes Hermanni & Co.—
Ichthyol ... 13
Denver Chemical Mfg. Co.—
Antiphlogistine ... 19
Dinneford's Fluid Magnesia ... 10
Evans Sons Lescher & Webb—
Analytical Notes ... 25
Fletcher, Fletcher & Co.—
Bromamalt ... 36
Gale & Co., Ltd.—
Entrapuro ... 12
Sugonum ... 12
" Antiseptics ... 12
Grillon—
Tamar Indien Grillon ... 14
Heppel & Co.—
Filludine ... 29
Globeol ... 29
Jubol ... 29
Urodonal ... 29
Jewitt & Son—
Liq. Santal Flav. c. Buchu et Cubeba ... 14
Humphrey Taylor & Co.—
Junora ... 28
Lecithin-Ovo ... 28
Ingram & Royle—
Natural Carlsbad Sprudel-Salt 17

CHEMISTS—(Continued).
Lactéol du Dr. Boucard ... 24
Lambert Pharmacal Co.—
Listerine ... 13
Macfarlan & Co.—
Chloroform, Ether, &c. ... 14
Maltine Manufacturing Co.—
Maltine with Cod Liver Oil ... 35
" Compounds ... 35
Meister Lucias & Brüning—
Salvarsan ... 23
Orthoform ... 25
Sajodin ... 25
Ferrosajodin Tablets ... 25
Antipyrin ... 25
Trigemin Capsules ... 25
Hedlosit ... 25
Mertens—
Electric Colloidal Metals ... 21
Newbery & Sons—
Pulvis Jacobi Ver. ... 42
New York Pharmaceutical Co.—
Hayden's Viburnum Compound ... 21
Parke, Davis & Co.—
Mixed Infection Phylacogen .. 31
Pharmazeut.-Fabrik "Stein"—
Valbromid ... 42
Raimes & Co.—
Bilinger's Nutrient Suppositories ... 42
Roberts & Co.—
Képhir Salières ... 12
S. P. Charges Co.—Sulphaqua ... 12
Trommsdorff—
Sozojodol-Sodium ... 43
Merjodin ... 43
Wander, Ltd.—
Malt Extract with Iron Iodide 30
Welford & Sons—
Sauermilch ... Cover ii
Willows, Francis, Butler & Thompson, Ltd.—
Pollantin ... 44
Wright, Layman & Umney—
Wright's Coal Tar Soap ... 22
Zimmermann, A. & M.—
Schering's Medinal ... 25
Schering's Valisan ... 25
Atophan ... 25
Spermineum-Poehl ... 25
Pellidol ... 14
Zimmermann & Co.—
Lenicet ... 16

DISINFECTANTS:—
Jeyes' Sanitary Compounds Co.—
Jeyes' Disinfectants .. Cover ii

ENGRAVERS (NAME PLATES) &c.—
Cooke & Co.—
Brass Name Plates and Lamps 73
Osborne & Co.—
Brass Door Plates ... 45

FOODS:—
Allen & Hanburys—
Allenburys' Diet ... 32
Aylesbury Dairy Co.—
Humanised Milk ... 10
Benger's Food, Ltd.—
Peptonised Beef Jelly and Chicken Jelly ... 38
Blatchley's Diabetic Preparations 44

FOODS—(Continued).
Bonthron & Co.—
Blogreno Cocoa ... 11
Charcoal Biscuits ... 11
Brand & Co.—Essence of Chicken. 44
Callard & Co.—
New Diabetic Foods ... 42
Casein Limited—
Secwa ... 42
Fry's Malted Cocoa ... Cover iii
Hommel's Hæmatogen—
Hommel's Hæmatogen ... 24
Horlick's Malted Milk Co.—
Malted Milk ... 45
Maconochie Bros.—
Pan Yan Pickle ... 44
Manhu Food Co.—
Manhu Diabetic Foods ... 11
Mellin's Food, Ltd.—
Mellin's Food ... 18
Nestlé's Milo Food Dept.—
Milo Food ... 20
Peter's Swiss Milk Chocolate ... 34
Sanger—
Hedley's Malted Milk with Hæmoglobin ... 11
Southall Bros. & Barclay—
Vitafer ... 20
Valentine's Meat Juice Co.—
Meat Juice ... Cover iii
Van Abbott & Sons—
Gluten Flour ... 10

FURNITURE, &c.:—
Carter—
Hove Self-Propelling Chair ... 74
Sandown Spinal Carriage ... 74
Maple & Co.—
Writing Tables, Chairs, Adjustable Couches, &c. ... 74

HOSPITALS (ISOLATION):—
Boulton & Paul, Ltd.—
Portable Surgeries, &c. ... 8

MED. & SURG. APPLIANCES:—
Bailey & Son—
Surgeons' Bags ... 41
Improved Surgeon's Midwifery Case ... 41
Consulting Room Couches ... 41
Personal Weighing Machine .. 41
Burroughs Wellcome & Co.—
Tabloid Brand Bismuth Gauze 37
Cocking—
Adaptable Poro Plastic Jackets and Splints ... 7
Davis—Lukens Sterile Catgut ... 9
Down Bros., Ltd.—
New Operation Table .. Cover iv
Holland & Son—
Patent Instep Supports Cover i
Hospitals and General Contracts Co.—Instruments, Dressings, &c. 39
Medical Supply Association—
Bergonié System of Treating Obesity ... 8
Millikin & Lawley—
Osteology, &c. ... 8
Robinson & Sons—
Capsicum Gangree Tissue ... 73
Southall Bros. & Barclay—
Accouchement Sheets ... 75
Southalls' Towels ... 75
Texax ... 7

MED. APPLIANCES—(Continued).
Timpson & Co.—
Canthos Blister Plaster ... 9
Vincent Wood—
Eureka Crêpe Velpeau Bandages ... 75
Zeal—Repello Thermometer ... 45

MINERAL WATERS:—
Davis—
Tarasp Water ... 10
Hogg & Son—
Lithia Waters ... 10
Ingram & Royle—
Centrovéville ... 27

OPTICIANS:—
Angus & Co.—
Microscopes ... 40
Leitz—
Large Portable Microscope ... 40

TAILORS, BOOTMAKERS, &c.:—
Burberrys—
The Burberry ... 45
Evans & Co.—
Regent Morning Coat ... 40

TOBACCO, CIGARS, &c.:—
Player & Sons—
Perfectos Cigarettes ... 42
Vallora Cigarettes ... 11

TYPEWRITING, &c.:—
Yost Typewriter Co.—Yost ... 30

VACCINE LYMPH:—
Dr. Ponndorf's Dry Vaccine ... 45
Jenner Institute for Calf Lymph ... 45
Robes & Co.—
Chaumier's Calf Lymph ... 45

WATCHMAKERS, &c.:—
Benson, Ltd.—
"Field" Watch ... 10

WINES, BEER, SPIRITS, &c.:—
De Kuyper's Hollands ... 15
Humphrey Taylor & Co.—
"G.B." Diabetes Whisky ... 28
Williams & Co.—
Chancellor Brandy ... 30

MISCELLANEOUS:—
Bachelet, Red Lion-street—
Hypodermic Syringe ... 46
Barker & Brettell, Birmingham—
Patent No. 25378 ... 70
Connaught Motor Carriage Co.—
Siddeley-Deasy Stoneleigh Coupé ... 70
No. 938, L.O., Strand—
French Lessons ... 68
No. 940, L.O., Strand—
Encyclopædia Britannica ... &c. 70
Patsourel, Crosby-on-Eden—
Goats' Milk ... 70
Portman Income Tax Relief Agency ... 68
Randall Bros.—Paripan Flat ... 15

EVERY FRIDAY. **THE LANCET.** PRICE SIXPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.*		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

* *The same rate applies to Medical Subordinates in India.*

Subscriptions (which may commence at any time) are payable in advance.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to insure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

ADVERTISING.

Books and Publications	Five Lines and under £0 4 0
Official and General Announcements	
Trade and Miscellaneous Advertisements and Situations Vacant ...	Every additional Line 0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.
Special terms for Position Pages.

The Annual Oration
ON
THE SURGICAL TREATMENT OF INFANTILE PARALYSIS.

Delivered before the Medical Society of London on May 18th, 1914,

BY ROBERT JONES, CH.M. LIVERP., F.R.C.S. IREL., F.R.C.S. EDIN.,
LECTURER ON ORTHOPÆDIC SURGERY AT THE UNIVERSITY OF LIVERPOOL.

MR. PRESIDENT AND GENTLEMEN,—When your Council graciously invited me to deliver the oration before this distinguished society I fear I had not the courage to refuse. The honour was such that for a time I did not realise my grave responsibility, and now I deplore the consciousness that I do not possess those gifts of erudition and imagination which have charmed while they enlightened you in the past. Despite the wide field you have allowed me, the choice of subject has not been easy. Devoted as my life has been to the more practical and clinical aspect of surgery, my horizon is for this very reason less comprehensive. I must, therefore, crave your kind indulgence while I deal in a simple and plain fashion with such principles as I have found helpful to me in dealing with infantile spinal paralysis. The subject is so vast and the technicalities are so manifold and intricate that I intend to dwell merely on those procedures which I have tested through the years and which have served me best, and to refer you to the work of others who labour in different ways in other fields. One must possess a buoyant spirit and boundless enthusiasm to treat these affections with advantage, and one must have fixed principles of wide application. If these principles are fundamental we must give them our whole-hearted allegiance and not merely pay them a transient homage. We can then afford to await results and not take heed of difficulties or yield to the counsels of despair. Like a mariner who meets an adverse wind we must not lack confidence, but exercise every art we know to land safely where we would.

There are few subjects which have aroused so much interest during recent years as that of infantile paralysis. This is due to its greater prevalence, its proved infectiveness, and the great advances in the method of attack which modern surgery has introduced. Unfortunately very little has been done in this country as compared with America and Germany by way of the collective investigation of etiological factors.

EARLY TREATMENT.

The early treatment of poliomyelitis falls of necessity into the hands of the medical man in attendance. It is on rare occasions only that the surgeon sees a case during the first few days, and then only where the onset of paralysis is accompanied by pain. Such cases are by no means rare, the pain being most marked in the spine and limbs. Rigid fixation of spine and limbs gives more relief than any other procedure I know. Indeed, I should make it a general rule that in every case, whether pain be present or not, the head and spinal column should be kept at rest in accordance with the general principles which guide us in the treatment of an inflamed area. The surgeon is often asked when treatment should be started. The answer is, "At once"; and during the acute and early convalescent stages the surgical treatment may be summed up in the word "rest," if this term be allowed to include the prevention of postural errors, such as tend to give an initial bias towards deformity.

Active treatment should commence *only* when the tender stage has passed. If a possibility exists that during the tender stage an active myelitis is present, there can be, in my opinion, no sound reason for the use of massage or electricity. How long may this tender stage last? I should say from three to eight weeks; in exceptional cases longer. We all know how difficult it may be to allay the parental apprehension during this period of surgical inactivity, but I have never found trouble when the reasons for the delay were made clear.

Our treatment should consist in placing the paralysed muscles in a position of relaxation, in the use of very gentle massage, and in active movements so conducted that no strain of the relaxed muscles be allowed. For instance, if the flexors of the ankle are being kept relaxed the foot should in no case be allowed into the position of equinus during massage, and any active movements should consist of flexion beyond but never below the right angle. Of this fact I have had many definite experiences. Some degree of voluntary muscular action should be encouraged as soon as possible, but at first there should be no movement of the joint, for the muscle is not strong enough to act against resistance. Thus, in a case in which the lower limb is fixed with the knee extended, in order to rest the quadriceps extensor, the first clinical sign of recovery will be a voluntary twitch of the muscle. The child's attention should be directed to this and he should be taught to practise it. The masseuse can soon lay a finger on the upper edge of the patella and so give a little added resistance. To allow the child to flex the knee at this stage would be to court disaster.

The character of the massage is very important and much harm may result if it be too vigorous. In this early stage it should consist of light vibratory effleurage applied as if to the skin, particularly over the area supplied by the same segments of the spinal cord as supply the impaired muscles. Rough kneading at any stage of the disease will damage fragile muscle fibre and diminish muscle tone.

POSSIBILITY OF RECOVERY OF MUSCLES.

Another question we are early called upon to decide is the possibility of recovery of weakened or paralysed muscle. This is often very difficult. It has always been the teaching that a muscle which exhibits the reaction of degeneration is outside the pale of hope, but years ago I drew attention to several instances where recovery took place in muscles where this reaction was carefully noted on the chart. This observation has been borne out and emphasised by many observers abroad. We may be certain that if a muscle reacts to faradism it will recover, but in actual practice the converse does not always hold. This may be due to the real difficulty that exists, sometimes even under anæsthesia, in making reliable observations in small children. The result is that in most active clinics complete electrical observations are rare. This would be a serious omission were no other means available to obtain trustworthy evidence sufficiently accurate to be a practical guide. We can, however, secure, with a little patience and gentle approach, much valuable information from

the conscious effort of the child. A muscular response may be elicited by even so slight a stimulation as a gentle scratch by the head of a pin, a gentle pinch, or by tickling the sole. No information can be gained from a child under the influence of fear, and if the child be too young to understand what is desired of it, it will be probably too young to justify any operative procedure. In such instances doubtful muscles should be treated as if recovery were to be expected.

It is often asked at what stage should we give up all hope of the recovery of a paralysed muscle. This depends largely upon treatment and upon an accurate knowledge as to whether the paralysed group is suffering from the effect of over-stretching or whether there has been a destruction of the dominating cells. I shall deal more fully later with the functionally disabled muscle, of which H. O. Thomas wrote 40 years ago. If under *appropriate* treatment a muscle makes no improvement in 12 months we may assume that its function is lost.

FUNCTIONAL PARALYSIS OF MUSCLES.

Before we discuss the general principles which should influence us in the operative treatment of poliomyelitis, it is necessary to enter more fully upon the question of the overstretched or functionally disabled muscle as contrasted with the muscle truly paralysed by permanent organic change in the spinal cells. I make no apology for this, for I regard the success or failure of mechanical treatment, of tendon transplantation, of neuroplasty, and even of arthrodesis, as depending largely upon the recognition of the facts revealed by the behaviour of muscles under strain.

I would ask your attention to the impairment of muscles themselves, of the nerves supplying them, and of the nerve cells in the spinal cord, and for an illustrative and simple example of the three conditions I would refer you to the deformity we call "drop-wrist."

Some years ago I saw a patient who had divided the tendons on the front of his wrist. The surgeon carefully sutured them and to make sure of secure union he bandaged the fingers and wrist in a flexed position. He kept them in this position for some weeks. The wound in the wrist and the divided tendons had healed, but the patient had no power of extension. As this disability persisted, I was consulted and reversed the position of the hand. The muscles which had been stretched by flexion and which had undergone an adaptive lengthening, f I may use the phrase, now shortened by being relaxed, and soon resumed their function.

I have previously alluded to experiments on friends, where, after 24 hours of moderate stretching applied to groups of muscles, a functional paralysis has resulted, rapidly recovered from only when the muscles were relaxed. Similarly if careful inquiries be made in a definite proportion of cases of drunkard's palsy, you may eliminate as a causal factor pressure upon the musculo-spiral nerve.

Next I would refer to blocking of nerves by minor lesions, such as a temporary pressure upon the external popliteal nerve, or an effusion of blood within a nerve sheath, as sometimes occurs in Erb's birth palsy, and in the trauma of the brachial plexus. In consequence of the blocking of the nerve path, muscles are paralysed, the paralysed muscles lengthen and again a dropped foot or a dropped wrist occurs, from which the patient will not necessarily recover when the nerve block is removed unless the overstretched muscles are given the opportunity of shortening. For example, a man aged 40 consulted me for paralysis following fracture of the humerus. His doctor explained that he lost power in his musculo-spiral nerve at the time of the accident two and a half years previously, and his extensors had been useless ever since. It was suggested that I should explore the nerve, which had not been completely severed, and then free it from callus or whatever pressure it was subjected to. The patient was quite unable to extend his wrist. The wrist and fingers were placed in full extension and the muscles massaged. In ten weeks the restoration of balance between the rival muscular groups was attained.

Then there are the lesions of nerve cells in the spinal cord, such as are due to lead, or the toxins of organisms, as in poliomyelitis. In these cases the nerve cell is not the only tisssue which is impaired. Although a large measure of recovery in paralysed muscles may take place, others may remain functionally disabled in spite of massage and electrical treatment, and yet this disablement may be due, not to destruction of the motor nerve cell, but to atrophic changes in the muscle as a result of disuse and stretching. Clinical experience has shown me that very often in cases of dropped wrist due to infantile paralysis recovery will take place many years after the original lesion if the muscles are kept continuously relaxed by dorsiflexion. In cases of long duration the hand is sometimes kept dorsiflexed for over 12 months without being once allowed to flex.

Condition of Whole Nerve-Muscle Apparatus.

The lessons I have learned from watching the clinical progress of these cases have led me to believe that we are not justified in considering cases of infantile paralysis as merely an injury of the spinal nerve cell by a toxin, and that recovery will depend simply upon whether the nerve cell survives or succumbs to the poison. We must rather consider the whole nerve-muscle apparatus. The lesion to the nerve cells may have been transitory, but in the meantime the muscle has been relaxed and overstretched by gravity, by habitual posture, or by overaction of opposing muscles. The muscle has wasted from disuse and become incapable of responding to such feeble impulses as come to it from an impaired nerve cell; consequently the normal afferent impulses do not pass up to the nerve cell because the muscular action which originates them is absent and the whole reflex apparatus, by which the spinal nerve cell and muscle react on each other to their mutual benefit, is put out of gear. Experiments have proved that excision of muscles leads to chromatolysis in the corresponding spinal nerve cells. Our ideas of the changes which take place in the process of degeneration and regeneration in a divided nerve trunk have been much enlarged in recent years Are we not warranted in assuming that, though in many cases the original disease has not killed the motor cell in the spinal cord, recovery of muscular action does not take place spontaneously because the whole apparatus, nerve cell, nerve trunk, and muscle are in a state of disuse, atrophy, and continue to remain so because the muscle from its mechanical disadvantage cannot perform its function of contracting, which is an essential part in the circle of reflex and trophic influences? Not only has all this a very important bearing upon the early treatment of the affection, but it is also the keynote as to the fate of a newly transplanted

tendon. If efficient treatment be begun at the onset of the disease, care taken that the knees and hips are not kept continuously flexed, that the weight of the bedclothes does not keep the toes pointed, but that the feet are held at right angles, that the biceps, brachialis anticus, and deltoid are not continuously stretched by the arms hanging to the side, then much of the residual paralysis may be averted, for as the first severity of the spinal lesion passes off, isolated groups will not be left at a mechanical disadvantage.

TREATMENT BY POSTURE, MASSAGE, AND EXERCISE.

The factors that tend to the undue straining of muscles following a paralysis are: posture generally influenced by gravity; inefficiently opposed muscular action; and deflection of body weight. The deformities become fixed when more powerful opponent tendons become structurally shortened.

In the case of the shoulder, where the deltoid is so often affected, the arm should be kept abducted from the first. This can be accomplished by any method devised to fix the hand behind the head. In paralysis of the brachialis anticus and biceps, the elbow, by the aid of a sling, should be kept acutely flexed. In paralysis of the extensors of wrist and fingers, as I have already indicated, the wrist should be kept acutely dorsiflexed. In paralysis of the peronei the foot should be kept everted; it should be kept inverted when the tibials are involved; with the toe pointed when the calf muscles are implicated; and at right angles when the flexors of the ankle and the extensors of the toes are at fault; and so with other groups of muscles. The splint applied should be such as to maintain relaxation while massage is conducted, and should be so constructed that they can be held in position without the necessity of putting pressure by hand or bandage over muscular tissue. This is a practical point of considerable importance in view of the necessity there is to guard the paralytic muscle against lessened blood-supply.

If electricity be desired the constant current can be used, but its advantages cannot be compared with those of posture, massage, and exercise. It will be realised by this that under no circumstances should even momentary stretching of the relaxed muscle be permitted, as the success of treatment depends upon undisturbed continuous relaxation.

Duration of Postural Treatment.

It may be asked, When should this treatment be discontinued, and what are the tests of recovery? We will take the wrist, elbow, and knee as examples. In the wrist, as soon as the hand, which is being kept dorsiflexed, can be voluntarily moved into still further dorsiflexion, the angle of the splint may be reduced by a few degrees, and if the power of dorsiflexion does not diminish from week to week, as the angle is being slowly reduced, recovery can be assured. This relaxation should only be allowed during the daytime; in bed the original angle should be maintained. A similar test should be applied to the elbow, which is slung at an acute angle. As soon as the patient can voluntarily diminish the angle the sling may be slowly dropped, the closest observation being maintained upon the character and strength of the muscular contraction.

I will relate one of many similar cases which come to my mind in order to impress this phase of treatment upon you. A small child aged 4 years, paralysed at the age of 2, was brought to me with a paralysis of all the muscles of the upper arm, but he retained some power in the flexors and extensors of the fingers. There was not the slightest effort made to use the elbow. I explained to the medical man, perhaps too briefly, the principles upon which I trusted when I slung the child's elbow at an acute angle. Some two months later I received a very enthusiastic letter from the doctor. He told me that the brachialis anticus and the biceps were both working well and that he had removed the sling and sent the boy to the country. I expressed my fears, and in a few days a letter, penned in a minor key, spoke of disaster. The muscles submitted to too much strain had been vanquished in the struggle. The elbow was then again acutely flexed and from time to time lowered under supervision, when recovery took place.

The test is conducted on similar lines in the case of the knee where the quadriceps is involved. The knee is kept extended in a splint and when recovery begins to take place the patella is seen to move. Later, when the movement of the patella is stronger, the test is carried further; the splint is temporarily removed and the patient's heel made to rest upon the table. If the patient can lift his leg ever so slightly from the table, the knee remaining extended, further graduated liberty of action may be allowed.

Operative Procedures to permit Relaxation.

In the early stages of treatment the only operative procedures which I judge to be expedient are those necessary to allow postural relaxation of the over-stretched muscle. These will consist mainly of tenotomies, more particularly in connexion with the Achilles tendon and divisions of bands of fascia, very often supplemented by the removal of a skin area, in order to obviate the disloyalty and carelessness of parents, who do not see the importance of keeping a foot constantly and for a prolonged period in the over-corrected position. Results are necessarily variable and disappointing under such conditions. To guard against this possibility I remove an oval area of skin sufficiently large, so that when the wound is sutured the foot is held in an over-corrected position. In talipes equinus skin is removed from the front of the ankle in sufficient quantity to retain the foot at right angles. In equino-varus the skin is removed from the outer side and front of the ankle, and so it differs from group to group.

CORRECTION OF DEFORMITIES.

It is of great importance to provide, as early as one can, for some degree of normal functional exercise of the whole limb. This is best attained in the lower limbs by allowing the patient to walk. It is during this stage in particular that we have to guard against those deformities which result from erroneously deflected body weight. The splints should be light and so designed that the alignment of the limbs and the distribution of weight upon the joints be accurate. My experience is that the surgeon usually sees his patient for the first time long after the initial stages are passed. He is then asked to deal with actual and functional paralysis with superadded deformity of varying degree. It may be laid down as an axiom that no operation such as arthrodesis or tendon transplantation should be discussed until all deformities have been corrected, and retained in correction for at least a fortnight.

This is hardly the occasion to detail the methods employed for the correction of the several deformities which are presented to us. A few

general remarks, however, are necessary if my address is to be of practical use. Contracted knees and hips should be overcome slowly. It is highly injudicious to exercise much force; indeed, force in the form of redressment, apart from its dangers, is very inefficient. It is much easier to straighten the fixed limbs of arthritis by force than those of poliomyelitis. Division of tendons, fasciæ, and even ligaments may be freely performed. A tendon, however, which may at some future date be required for transplantation should be spared from tenotomy and be gradually stretched instead, for adhesions are very apt to form over old scar tissue.

A common deformity which is so often the despair of the surgeon of to-day is the one in which he finds both limbs contracted at the hips and knees, and where the spine is lordosed, the pelvis oblique, the knees in genu valgum, and the feet in equinovarus. My mode of attack in such a case would consist in the division of the tensor fasciæ femoris and of any other tight structures in that neighbourhood, moulding the feet into a valgoid position, dividing the Achilles tendons, and then laying the patient on a splint or frame of the Thomas's type, adding a simple extension to correct the pelvic obliquity, and with a bandage to the outside bars of the splint to overcome slowly the knock knees. The procedure is simple and invariably effective. The lordosis will usually be overcome in three or four weeks with barely any discomfort. We must employ gravity as our ally by so placing the limbs that time is not wasted. Even here common sense and practical experience must be of use. For instance, after division of the tensor fasciæ the limbs must be kept slightly hyperextended and rotated inwards, otherwise no strain is applied to tight structures. Where deformities are extreme, lordosis, no matter how pronounced, should be absolutely corrected if we are to attain the best functional result. Sufficient attention is hardly given to this very important point.

Many authors warn us to be careful of evils which may follow division of the Achilles tendon. The substitution of a calcaneus deformity for an equinus would be serious. This is a real danger in spastic cerebral paralysis, and a subcutaneous tenotomy in such a condition should never be performed. In my own experience, and I have divided the tendo Achillis and immediately corrected the deformity many thousands of times, non-union has resulted in three instances only. Despite this good fortune, in adults with extreme deformity, I generally employ one of the many methods of subcutaneous plastic division. The lengthening so much feared is the result of faulty after-treatment, the uniting tendon having been allowed to stretch before it is sufficiently strong to bear body weight. Another common mistake is to place a small pad over the site of puncture, so permanently separating one end of the tendon from the other. In a limb with three inches of shortening it is tempting to leave the tendon shortened and let the patient walk on tip-toe, but it is a temptation to be resisted, for we must always think of the muscle group which is being stretched with its possible potentialities of recovery. If recovery does not take place the resources of surgery are not ended, and means must be taken to give further stability to the joint.

Let us recognise, therefore, as a fundamental principle, that every fixed deformity should be corrected before any operations are performed for securing improved muscular function. These deformities may be overcome by manipulation, tenotomies, fixations, and extensions, and more rarely by osteotomies and the removal of bone. These preliminaries, however, are inevitable and allow of no exception. I emphasise this because I have frequently seen failure in tendon transplantations due solely to their neglect.

TENDON TRANSPLANTATION.

In briefly discussing the question of tendon transplantation I shall make no attempt to enter into the details of various operations, but will be content to point out what in my experience are the indications for its performance, the elements that make for success, and the causes of failure.

The object of a transplantation is to improve or restore muscular balance. It is not justified unless it improves function. There is little satisfaction to a patient if the transplanted muscle merely responds to faradism, or even makes a feeble movement by an effort of the will. It must be, or give the promise of becoming, a substitute for the muscle it supplants. It can only be judged by its usefulness. It may be applied to restore the balance between opposing groups of muscles by helping a redistribution of power, or its attachment may be slightly transposed to prevent deformity. Or it may be applied, as it often is, as an accessory to arthrodesis or in conjunction with the use of silk ligaments. Now, if we were to be guided entirely by the charts that have been worked out as to the relative strengths of muscles, and if we were to abide by them each time we desired to transplant a tendon, we should probably be discouraged at the very threshold. The tibialis anticus would be too strong to supplant the peronei, and the peronei too weak to act as a substitute for the tibial group. Although it is useful to possess the knowledge that the calf muscles are as strong as all the other muscles of the foot put together, we need not infer from this fact that in pes calcaneus no tendon transplantation need be tried. Healthy muscles can be developed to an extraordinary degree. Some years ago I was called upon to operate upon a boy whose peroneus longus slipped over his malleolus. This had happened for two years, and I was amazed at its great size. On inquiry I found that the dislocation, which was voluntary, was always accompanied by an audible snap, and the youngster collected pennies by displaying his gift, and had thus greatly over-developed the muscle. Transplanted muscles by special exercise become similarly developed. The equalisation of forces, therefore, is not essential, for Nature has a large margin of adaptability, but for obvious reasons an effort should be made to get all the help possible when we have to secure substitutes for a powerful tendon.

Clearly the most important factor in commanding success is a sound judgment on the part of the operator. He should definitely realise what he wants to do and the means at his disposal. He should not be content merely to know the action of the muscle he is transplanting, but he should judge also of the disability he creates at the part from which the tendon is removed. There is no sense in substituting one deformity for another. Transplantations are most successful when the paralysis is limited and when re-enforcement can be introduced from close vicinity. The operator is the best judge of the value and strength of tendons. This can best be done by noting the active movements. Many a muscle which responds to faradism

is not fit for transplantation. I have no sympathy at all with those surgeons who make large incisions to investigate the colour of the muscle fibre before they transplant. No operation should be done until evidence of sufficiently strong active movement in the muscle to be used has been obtained. Experience clearly indicates that we are justified in sacrificing abduction and adduction of the foot for plantar flexion and dorsiflexion, and that we can at any time sacrifice the mobility of the toes whenever the tendons are likely to be of use elsewhere. Paralysis of the calf muscles is the worst of all disabilities. I have long ago discarded complicated varieties of transplantation, the subdivision of muscles, and the many forms of fixation into tendons, and I rely more and more upon simple and direct methods.

For a varus deformity, I transplant the tibialis anticus; for a valgus, the peroneus longus and the extensor proprius hallucis. For a partial paralysis of the calf muscles, I shorten the tendo Achillis, pleat the posterior part of the capsule, fix the peroneus longus and flexor hallucis firmly into the insertion of the tendo Achillis, and remove an area of skin at the back of the ankle. Where the calf muscle is completely paralysed after correction of the cavus I transplant the peronei and flexor hallucis, with any other available muscle from the sole, into the tendo Achillis.

In cases where the paralysis is complete, or almost so, my own two stage bone wedge resection, or the operation of Whitman, which involves the removal of the astragalus and a readjustment of body weight upon the ankle, is sound and effective. In paralysis of the quadriceps I transplant one or more of the hamstrings, and these practically complete my list of transplantations except for rare conditions. I rarely utilise tendons in the upper limb, although occasionally I find it necessary in the spastic type such as infantile hemiplegia.

Technique Employed.

There has been much discussion as to the method of implantation. I am in no manner of doubt as to the great advantage of transplanting into bone. Lange and Vulpius respectively advocate grafting into periosteum and tendon, but when it is possible a graft into bone gives far greater security. There may be a sound reason on rare occasions for employing silk tendons, but I am quite satisfied that, wherever it is possible, the tendon should be directly implanted into bone.

If you will allow me I can best indicate the technique I employ by describing to you the operation of transforming the peroneus longus into an inverter of the foot. The tourniquet is applied above the knee and only removed when the wound is dressed and bandaged. This obviates bleeding, a source of danger to the security of the graft. An incision of about an inch in length is made on the outer side of the foot and the tendon is divided where it turns round the cuboid. A small incision is next made over the muscle, well above the external malleolus, and a smooth dissector is passed underneath the tendon, and it is pulled through the opening and wrapped in a sterile dab. A small incision is then made over or near the scaphoid, and a curved forceps is passed from this to the upper wound, preferably through fat, and moved about to make a free tunnel. The tip of the tendon is now held by the forceps and guided through the tunnel to its new insertion. Care must be taken that in its transit it runs as nearly as possible parallel to the tibialis anticus, and that there is no angle in any part of its course. The attachment may be made in one of two ways. A hole may be drilled through the scaphoid, or internal cuneiform, and the tendon passed through it. This is a method of choice. Or in a case where the tendon is short a groove may be made in the bone and the tendon may be made to lie in it while the end is fixed in ligamentous tissue below. The wounds are then closed and the foot is bandaged in inversion. No silk is used around the tendon which is secured by chromicised gut.

The important part of the technique is first and foremost never to handle the tendon with forceps anywhere excepting quite at its periphery, to pass it through fat, to secure the transplanted end in firm, unyielding tissue, and to see that the alignment makes for a direct pull. Experiments have conclusively shown that wherever a tendon is roughly handled adhesions form; for this reason it is well to compress the tendon with forceps at the point of its attachment—namely, at the end—but nowhere else. The causes of failure are largely due to errors of judgment and to faulty technique. This is suggested by the progressive improvement in our results. In many of my early cases the point of attachment yielded under the influence of strain, in others, adhesions formed. This was due to want of delicacy in the handling of the tendon, to the character of the structure through which it was made to pass, and to want of directness in the pull. The tunnel through which the tendon is directed should be roomy, the track through which it passes should be where possible in one plane, it should not pierce different layers, it should never abruptly turn a corner, nor perforate an interosseous membrane. The transplanted tendon should not be called upon to correct deformity, nor follow the convex aspect of a bone. It should not be allowed to travel immediately below the line of incision for fear of adhesions, nor be affixed to yielding structures. When its sheath can be preserved it is of advantage, but this cannot always be. Total transplantation is always preferable to partial, and when choice exists it is well to fix upon a muscle for transplantation whose function is similar to that which is paralysed. There is another point upon which I lay great stress, and that is an appreciation of the appropriate tension on the transplant. Under excessive tension muscle atrophies, while if the tendon is left too slack restoration of its function will be long delayed.

After the tendon is transplanted, and before education begins, a somewhat prolonged period of fixation is needed, all strain on the graft being prevented. Three months or more may be needed by the calf muscles; in the case of the everters and inverters of the ankle, from four to six weeks; the extensors of the knee require considerably longer. Light celluloid or leather splints of a removable kind may then hold the joint in position for an indefinite period, to prevent the harmful exercise of body weight during walking. The splints should be removed two or three times a day during the whole of this period for the practice of massage and active exercises under resistance. In other words, every care should be taken to strengthen the transplanted tendon for its new responsibilities.

Results of Tendon Transplantation.

Seven or eight years ago Hoffa, Lange, Vulpius, and I were invited to give our experiences of

tendon transplantation at the French Congress of Surgeons in Paris. We differed from each other in our respective procedures, but we all spoke in favour of the operation. Our colleagues in France were not so enthusiastic, and Kirmisson especially drew attention to the fact that although immediate improvement occurred, it was generally followed by loss of function in the transplanted muscle. This has been referred to by many writers and must be within the experience of us all. Why should a muscle which is working at first fail later? With hardly an exception it is because we do not recognise in practice the principles in regard to muscle stretching which I have discussed at such length. Either the muscle has not been developed sufficiently to defend itself against an opponent, or, during walking, body weight has been allowed to bear injuriously upon it. These are both fundamental errors which are happily avoidable, and can, even when they have happened, be remedied by recourse to relaxation and massage.

I rarely operate upon children under 5 years of age for three reasons: First, because of the technical difficulty in handling and fixing minute tendons; secondly, because we should be sure that sufficient time has elapsed to give the muscles a chance of recovery without operation; and, thirdly, because it is most essential that the child should be sufficiently intelligent to give us help.

A fascinating problem to study is that of physiology or psychology as it affects the transplanted muscle. It is very difficult to understand how an inverter can be trained to evert the ankle, and how it can be made to exercise its new function by an effort of volition. Vulpius suggestively refers us to the work of Galen, Duchenne, and Sherrington on the function of opponent groups and draws attention to the well-known fact which we have all observed, that when we ask a paralytic whose extensors are lost to attempt extension of the toes he uses the flexors instead. This does not happen in a later stage. Both clinical and physiological investigations clearly prove that when a muscle or muscle group is stimulated to contract, the opponent muscle or group is inhibited. It has been argued, therefore, that a hamstring, transplanted into the patella to reinforce the quadriceps extensor, will not contract simultaneously with the latter muscle. According to this view, which is supported by Murk Jansen of Leyden, the only real benefit of this transplantation is that it makes the knee-joint steadier, and when the hamstrings contract in flexion the transplanted hamstring also contracts and prevents their uncontrolled action. Even if this were the whole truth of the case, the operation would be beneficial from the practical point of view, but it is not the whole truth; generally the transplanted tendon can be seen and felt to become tense simultaneously with the quadriceps extensor. In the present state of our knowledge I venture to suggest that this dissociation of the action of the transplanted muscle from its own natural group, and its association with a new strange group, is comparatively easily attained in children under careful muscle training. Certainly in adolescents a long and uncertain struggle between the opponent groups is often observed, suggesting that the older the patient the more difficult is education. In my opinion this indicates the necessity for more careful consideration of our methods of muscle training rather than a hasty condemnation of the operative procedure.

OPERATIONS TO GIVE STABILITY TO JOINTS.

Associated with the transplantation of tendons we have to consider measures which add to the stability of joints as distinct from their mobility; these consist of artificial ligaments, tendon fixation, and arthrodesis.

Artificial Ligaments.

As an outcome of the use of silk tendons by Lodge, several experienced surgeons are using silk ligaments in order to give stability to the joints and to guard newly transplanted tendons from strain. It is interesting to inquire what becomes of these silken tendons and ligaments. Anger and Gluck many years ago experimented upon the fate of silk strands used to fortify and bridge separated structures, and they concluded from experiments on animals that in some instances the silk was displaced by connective tissue, and in other instances the silk formed a trellis work along which connective tissue grew. Lange, who has had a very large experience, tells us that artificial silk tendons, with use, will develop from the size of a knitting needle to the thickness of a little finger. His microscopical examinations revealed the fact that the tissue immediately adjacent to the silk had all the characteristics of true tendon.

My personal experience, by no means an extensive one, has not been fortunate. I have operated upon only six cases. Each case healed uneventfully, but later in two instances the silk began to irritate at the points of insertion and had to be removed. There was no attempt at the formation of connective tissue in either case, although the strands had remained quite aseptic. In a third case, many weeks after operation a suspicious reddening appeared over the knot, which had not been sufficiently hidden, and again the silk had to be removed. In two of the remaining cases the union was stretched, and in only one instance has the foot remained in a desirable position. All this may be due to faulty technique, but I am interested to note that Rich, of Tacoma, has had to remove the silk in 18 out of 40 cases in which it was used, although only in two cases was there any primary infection. Against these experiences I must refer to the successes reported by Lange, Tubby, Plummer, Ryerson, Allison, and others. In an interesting summary favourable to the use of artificial ligaments, Bradford and Soutter state in order to prove the strength and permanency of the ligament "that in a child of 8 the paralysed muscles largely recovered their function, and that in a man of 23 years, one year after the operation, not only was a foot-drop prevented, but some restoration of function furnished." This is only a further confirmation of the advantage of preventing strain from falling upon so-called paralysed muscles. We should keep a very open mind upon this question. The fixation of artificial ligaments into bone is so simple, and offers so many inducements, that if we can feel assured by further experience that the silk will not give rise to trouble, the method will have an assured position. For instance, in foot-drop with complete paralysis of the anterior muscles, if the silk will not merely remain, but will also develop in thickness and strength, a distinct gain will be conferred. Even when the paralysis is not complete it may prove, as in the cases reported by Bradford and Soutter, an effective means for protecting the over-stretched muscles.

Tendon Fixation.

At present the operation of utilising the tendons as ligaments has a greater fascination for me. Tilanus first suggested it and it is capable of very general application. It involves sacrificing the tendon, so it becomes obligatory to make quite sure that the paralysis is permanent and complete. If the tibials are paralysed, for instance, an incision is made above the ankle and the tendon of the tibialis anticus is pulled upon until the eversion of the foot is corrected. It is then securely fixed under the necessary tension into the periosteum or bone. The tendon may be divided, but often it is quite unnecessary. The deformities of equinus and varus are overcome by similar procedures. This operation seems to me to be more physiological than is that of the introduction of silken cords, for we are using a homogeneous tissue which will not act as a foreign body.

In the present stage of our knowledge, operations such as I have described are insufficient when we have to deal with a flail joint, over which there is no muscular control, if it has to support body weight. With further and improved methods of using tendon fixations and artificial ligaments, both within and without the joint, we may in time be able to make such joints capable of bearing the strain of walking; at present, however, this is not so. Tendon transplantation, unassisted, is of very little use at the ankle where several of the muscular groups are totally paralysed. Lange speaks optimistically of producing useful function at the ankle-joint if only three muscles are left to him. Under such circumstances he would use two for dorsiflexion and the third as a substitute for the Achillis tendon. I am sorry to say, with so limited a choice, I should be hopeless of success. There is no single muscle which can undertake the duties of the tendo Achillis. When we have a flail ankle to deal with the only operative success at present is arthrodesis.

Arthrodesis.

Over 20 years ago I advocated the bony fixation of flail joints in the position of greater advantage. At that period the operation had only on rare occasions been performed. I fear that my enthusiasm carried others as well as me into a somewhat too confident generalisation as to its merits and indications. There was then no choice of methods. It predated plastic work. There is nothing I regret more than that in those days I argued in favour of arthrodesis of the knee in childhood. It is an operation which a more matured experience teaches me should never be performed upon a child. In the *adult* it gives an admirably firm limb, and under certain conditions it may prove the best thing to be done. There are many who are very grateful to be spared the use of troublesome apparatus. There are others who have come to me whose knees were stiffened in childhood and who beg for a restoration of motion. A surgeon can have no experience more bitter. No knee-joint should be fixed until the patient is old enough to appreciate fully the arguments in favour of, and against, the operation. In the child it often results in a pseudo-arthrosis; sometimes it develops into a bony flexion, and it is very apt to throw harmful strain upon the hip, the muscles of which so often participate in the paralysis. Even in the adult, if the facts are clearly driven home to the patient, his choice will fall often upon some form of cheap and light support whereby he may be less awkward than if his limb were stiff. I am prepared to admit that certain people with blue dangling limb, retaining some power in the psoas muscle, may find ankylosis of knee and ankle combined a real boon.

Arthrodesis of the ankle-joint is quite another matter and is often of very considerable advantage. It should be usually associated with fixation at the mid-tarsal joint, should never be performed upon a child under 8, and it is better to delay even longer. Vulpius disagrees with me upon this point, but his arguments do not appear to be in the least convincing. The delay renders ankylosis much more certain, and with ordinary care the deformities and contractures he speaks of will not occur. The deformity which sometimes occurs after this operation is an obstinate varus and is due to a faulty technique. Before the operation, if there is any cavus deformity, the sole should be flattened and all tight structures severed. After its completion the bare surfaces of the astragalus should be closely hugged by the malleoli, while the foot should be fixed with flattened sole in a position of slight abduction. This position should be maintained for at least four months. The hip and wrist should never be ankylosed, nor do I see any advantage in operating upon the elbow. The shoulder requires a bony fixation where the deltoid only is paralysed and the scapular muscles are active. The humerus should then be abducted, drawn forward, and slightly rotated inwards, when it will respond at a useful angle to movements conveyed through the scapula.

We must remember that, at the best, arthrodesis is a mutilating operation and should be the last resort. If a mistake is made it cannot be remedied, and mistakes unfortunately are frequently made. Some time ago I saw a boy, aged 10, whose knee had been arthrodesed because of paralysis of the quadriceps extensor. The paralysis had lasted three years before the operation was performed. As an arthrodesis, the result had been a failure, because the knees moved, but the profoundly interesting fact is to come. The quadriceps, so long rested, had recovered, and the knee could be easily and strongly extended. It was a valuable object lesson to all who saw it.

NERVE SUTURE.

We have discussed the various methods by which we are able to give immense relief to these crippled children. We can generally avoid deformity; we can always correct it. We can often rectify lost function and make flail limbs firm. Such results are very important, but it would be depressing to feel that we are destined always to travel on these lines: building up by complex mechanism, steel splints without, silk splints within, muscles fixed to new attachments, and joints ruthlessly destroyed. Our thoughts naturally turn to more conservative methods by the way of the nervous system. Whether nerve-crossing is ultimately to lead to great triumph or to bitter disappointment we cannot yet answer without being biased either by hope or despair.

The many successful cases of nerve suture in man which followed that of Baunders in 1835 have placed this operation upon a sure foundation, and primary suture is to-day a daily routine. Similarly, secondary suture has outlived its experimental stage and under favourable conditions we can predict success. From this it does not seem a wide step to nerve-crossing, and yet it is a momentous one. Perhaps the earliest success was reported by Sick and Sanger, who grafted a portion of the median nerve into the radial. In our

own country, in 1895, Ballance met with gratifying success when he united the facial to the spinal accessory. The physiological theory of the neurones was adverse to the experiment, but, as sometimes occurs, the findings of the more exact sciences are modified by the findings of surgical empiricism. The work of Ballance and Stewart was founded on the belief that regeneration occurs in two ways—by a downward growth of axis-cylinders from the proximal or central segment, and by essential processes of regeneration in the distal end in the form of a new growth of neurilemma cells, which become part of the new axis-cylinder.

I believe the present position of the neurologist is once more the old one—that the axis-cylinder grows down from the proximal end, but the neurilemma cells play an important part in its nutrition and assist its downward growth. Should the distal segment not be sutured or bridged, the impulses to and from the central nervous system cannot travel, and these new parts therefore never become developed, but merely exist as embryonic nerve structures. As Osgood has suggested: "In the problem which presents itself in cases of paralysis following acute poliomyelitis we find different conditions existing from those obtaining in traumatic or experimental division of nerves, and questions demanding answer at once arise. How essential, if true, is this process of regeneration in the distal or peripheral segment to future conductivity and restoration of full function. Are the nerve trunks, which run to the paralysed muscles, themselves affected by the disease we are considering, and if so does regeneration occur in the trunks as the infectious process subsides? If it does not, must we consider this degenerated old nerve trunk as simply a scaffolding, or bridge, and suppose that the new axis-cylinders of motion, growing from any healthy proximal or central trunk into which the diseased nerve may be grafted, must travel along such a path before we may expect any return of motor power?" These are certainly interesting questions when we compare the almost brilliant results of experiments on animals and the excellent results obtained after primary and secondary suture in man with the hitherto distinctly disappointing results obtained in infantile paralysis. There is no evidence that the virus of poliomyelitis attacks the peripheral nerves. In comparing results of operations on cases of paralysis with those of nerve-crossing after experimental section, we must remember that in the former we are dealing with nerve trunks which have for a long time been in a state of disuse.

Every now and again a partially successful case is reported. Spitzy, who has been one of the most assiduous workers in this field, has obtained encouraging results. Partially successful cases have been reported in our country by Tubby and by Sherren, and we have now in literature records of over 50 cases. Warrington and Murray, in a very able and useful communication, report five failures after most carefully conducted operations. The authors suggest that a cause of failure may be the fact that the apparently healthy nerve trunks, which conduct energy to the paralysed muscle, are less virile and can draw from fewer motor cells than before the disease; while they may just have enough to supply their own trunk they have none to spare for another.

Topography of Cross Sections of Nerves.

Quite recently a new impetus has been given to this subject by the investigations of Stoffel, who, by an elaborate system of dissection, has worked out the topography of the cross section of nerves. He seems to have proved conclusively by very laborious dissections that the nerve branch to each muscle is continued for a considerable distance up the nerve trunk as a separate and distinct nerve bundle. He maintains it to be fairly constant and definite in position, and by a study of the nerve any bundle desired at an operation may be secured. Nerve graftings should be materially helped by this discovery, as healthy nerve tracts which go to supply muscles of minor importance can be drafted for implantation into paralysed nerves. Without this knowledge motor fibres might easily be attached to sensory ones. This is contrary to the previous findings of Bruandet, whose experiments led him to conclude that the motor fibres in a peripheral nerve have no compact distribution, but are diffused and mixed up with all other fibres. If Stoffel's conclusions are correct, our technique will be much simplified. It is obvious that if one attempts to cure a paralysis of the extensor group of muscles in the leg by splitting off a strip of the internal popliteal nerve and planting it into the external popliteal, there is no reason why the graft should not unite—modern surgery can secure that. Further, as we have seen, our modern knowledge of the regeneration of nerves gives us every assurance that the graft ought to perform its function in conducting nerve impulses provided the portion split off is a bundle of motor fibres, and provided it is planted into the proper bundle of motor fibres in the other nerve and not into a portion of it which contains only sensory fibres. This is the practical anatomical difficulty which up to now has remained unsurmountable. When we turn next to the successful cases, which have been reported, some are probably cases in which the surgeon has really succeeded in grafting motor fibres into motor fibres. When, however, we look up the details of after-treatment, in several instances we find that part of the treatment consists in fixing the limb in a position in which the paralysed muscles are relaxed, so that they may more readily respond to any impulses sent down through the regenerated nerve. Here, in my opinion, lies the fallacy, for some of these cases might have recovered, if fixed in this position for a sufficient period, without transplantation. In support of this Wittek, of Gratz, knowing my views upon this subject, sent me a report of one of his cases. It was sent on from the neurological department with a report of reaction of degeneration in muscles supplied by the external popliteal nerve. Relying on this report he performed muscle transplantation, and the result was successful. A year later the patient came back with an extreme valgus, the internal malleolus touching the floor. On examination the muscles previously pronounced to be hopelessly paralysed were now acting strongly, while the previously strong groups were paralysed from overstretching. There was nothing for it but to reverse his former operation and put his transplanted muscle back where he found it. His remark was, "What a brilliant result to record if I had only done nerve transplantation." Many of us have had similar experiences in cases where we have been hasty in transplanting muscles.

Although the results of neuroplasty in poliomyelitis leave much to be desired, there is no occasion to abandon hope. We may learn in time the lessons taught by failure, and, what is infinitely

more important, take courage from success. A failure depresses, but a success is eloquent of possibilities, and that is just the encouragement we want. Failure should merely set us thinking, and however critical our mind it should always remain an open one.

INTRINSIC CANCER OF THE LARYNX:
COMPLETE EXCISION APPARENTLY EFFECTED BY ENDOLARYNGEAL OPERATION.[1]

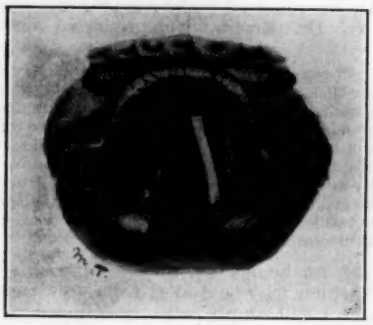
BY SIR STCLAIR THOMSON, M.D. LOND., F.R.C.P. LOND., F.R.C.S. ENG.,
PROFESSOR OF LARYNGOLOGY AND PHYSICIAN FOR DISEASES OF THE THROAT IN KING'S COLLEGE HOSPITAL.

THE treatment of intrinsic cancer of the larynx by laryngo-fissure is remarkably satisfactory. It is doubtful if the results of operation for cancer in any other part of the body can surpass those I have already published.[2] Since giving full particulars and showing cases before the Medical Society of London in 1912 I have continued to obtain the same results—i.e., no patient has been lost by operation, and 80 per cent. have remained free from recurrence. This freedom from recurrence dates back in some cases for 10 years. The same proportion of lasting cures was obtained by Semon, who did so much to popularise laryngo-fissure in these cases, and similar records were secured by Butlin, who revived the operation after it had been quite discredited both in this country and abroad. Possibly it is because these excellent results were first obtained in England that we in this country have come to look askance at any other route for removing an endolaryngeal cancer except that obtained by splitting the larynx. We are even a little sceptical in accepting the records which claim permanent cures by operating through the mouth, yet such cases have been published by several eminent authorities.[3]

Amongst my recent cases it has been my good fortune to obtain, in a curious way, the definite proof that an intrinsic cancer of the larynx can be completely removed *per vias naturales*. But I hasten to add that the completeness of removal was unintentional, and that I do not for a single moment suggest that excision of a cancer of a vocal cord should ever be confided to the laryngeal forceps. On the contrary, this very case which I am about to relate gives the strongest proof of the desirability and hopefulness of treating intrinsic laryngeal cancer by opening the larynx from the outside. It was the first case of endolaryngeal cancer which I have handled in a woman; all my other cases were males.

The patient, a woman aged 53, had been hoarse for eight months, when she was sent to me at King's College Hospital on Oct. 12th, 1912, by Dr. R. H. Shaw, of Great Yarmouth. The right vocal cord from the anterior commissure back to the vocal process was replaced by a reddish, cauliflower growth. (Fig. 1.) This somewhat interfered with the movement of the cord, but its intrinsic mobility was not impaired. There were no enlarged glands, and the case was evidently a very suitable one for operation by laryngo-fissure. The Wassermann reaction was negative and the chest was healthy As the growth did not infiltrate the cord to any great extent (as shown by the

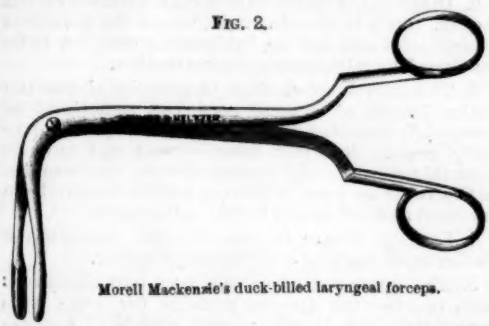
FIG. 1.



Malignant growth of right vocal cord.

persistence of mobility), and as it projected well above the surface, I decided to remove a portion so as to confirm the diagnosis by microscopical examination. With the aid of cocaine, and using a large-sized duck-billed forceps of Morell Mackenzie (Fig. 2) with the indirect method, I

FIG. 2.



Morell Mackenzie's duck-billed laryngeal forceps.

seized as large a piece of the cord as possible, and, finding it very tough, I removed it by avulsion. The toughness and naked-eye appearance were confirmatory of my diagnosis of malignant disease, and the following report on the removed tissue was kindly furnished by Dr. W. d'Este Emery:—

> The material is an irregular mass about 9 × 5 millimetres. It is divided into two parts, of which one consists of papillomatous and epitheliomatous tissue, with a very small amount of fibrous stroma which shows evidence of subacute inflammatory changes. The large portion consists of a firm fibrous basis. On one edge there are some mucous glands. On the other two unattached edges there is a margin of epitheliomatous tissue, which in places is inflamed and ulcerated. The epithelioma in this section is a typical one, but shows little keratinisation. There are a few imperfectly formed cell nests, and some so-called "cancer parasites."

On Nov. 28th, 1912, anæsthesia was induced by intravenous infusion of ether and hedonal. The usual laryngo-fissure operation was carried out; no Hahn's tube was used. The remains of the right cord and the ventricular band were dissected up with their perichondrium from the inner surface of the thyroid cartilage and removed *en masse*, together with the vocal process of the arytenoid

[1] A paper read before the American Laryngological Association at the meeting in Atlantic City, N.J., on May 25th, 1914.
[2] Brit. Med. Jour., Feb. 17th, 1912; THE LANCET, Feb. 24th, 1912, p. 504.
[3] B. Fraenkel: Deutsche Medicinische Wochenschrift, xv., 1889, Nos. 1 to 6, S. 1 to 109; Archiv für Laryngologie, vi. ii., 1897, S. 361 to 374. Arslan: Archivi Italiani di Otologia, xii., 1901, fasc. 2; Annales des Maladies de l'Oreille, xxx. i., Fév. 1904, p. 130. (Gives an analysis of recorded cases Two personal cases, confirmed by the microscope, remained well after 4 years and 20 months respectively.) Finder: Journal of Laryngology, vol. xxv., 1910, No. 11, p. 602.

cartilage. The tracheotomy tube was removed before the patient left the table. The patient would have been allowed up the next day, but she was exceedingly drowsy from the hedonal and could hardly be roused. However, within 48 hours of the operation she was sitting out of bed and taking solid food. She returned to the country a fortnight after operation.[4]

The tissue removed by laryngo-fissure was submitted to Dr. Emery, who reported on it as follows:—

The specimen is of an irregular shape, the longest dimensions being 19 × 10 millimetres. The base consists of striped muscle which is inflamed and œdematous; some mucous glands occur in the lowest portion. Above this there is a layer of organising granulation tissue in various stages, but there is no epithelial covering. Mucous glands, normal or slightly inflamed, are scattered throughout the section, and at one end there is a triangular piece of cartilage about 2½ millimetres long. There is no sign of epithelioma or other malignant disease in any other part of the section.

This report brings us to the instructive conclusions which may be drawn from this case, and, to be brief, I will simply state them in order.

1. Cancer of the vocal cords is, in early stages, a very slowly progressive and strictly limited process. (N.B.—In this case hoarseness dated from eight months, the cord was still quite mobile, and the disease was still superficial.) Alteration of voice is the principal, and may be the only, symptom. Persistent hoarseness in any patient calls for a definite diagnosis.

2. Diagnosis is based chiefly on inspection of the larynx. Only in certain cases, where the growth is a superficial and not an infiltrating one, can it be confirmed by microscopical examination.

3. The growth, even when it occupies almost the entire length of a vocal cord, can sometimes be completely removed by endolaryngeal operation in early cases. But this completeness can only be ascertained when, by laryngo-fissure, the remains of the vocal cord and adjoining soft parts have been removed and submitted to the pathologist.

4. Laryngo-fissure is, therefore, the operation of choice in all cases of endolaryngeal cancer.

5. The operation offers the very best prospects: first, because the disease remains for some time superficial and limited; and secondly, because laryngo-fissure cannot be considered a dangerous operation.

6. Statistical results show a lasting cure in 80 per cent. of cases, and if all cases presented themselves and were diagnosed early there is no reason why the results should not be even more satisfactory.

My patient is in good health, with a useful voice, and has no recurrence at the present date—that is, one and a half years after operation.

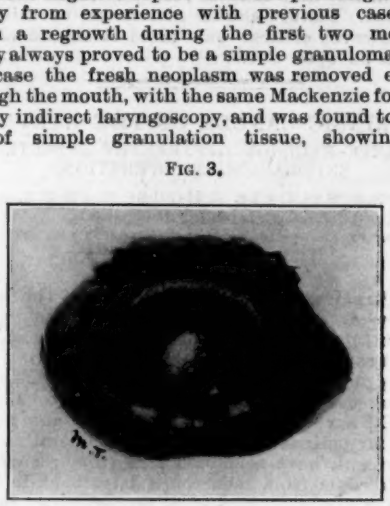
I have already confirmed the opinion originally enunciated by Semon, that if recurrence does not take place during the first year after operation there is every prospect of permanent cure.

ADDENDA.

In addition to the six conclusions I have tabulated above this case suggests three other points which, I think, are very interesting:—

(*a*) *Regrowth.*—Towards the end of January, 1913—i.e., two months after operation—the patient began to show symptoms of what many would have taken to be a recurrence of the growth. (Fig. 3.) But I had no anxiety myself, partly on account of the above negative report from the pathologist, but chiefly from experience with previous cases in which a regrowth during the first two months nearly always proved to be a simple granuloma. In this case the fresh neoplasm was removed entire through the mouth, with the same Mackenzie forceps and by indirect laryngoscopy, and was found to consist of simple granulation tissue, showing no epithelioma or sign of malignant disease in any part of the section. The moral of this is that a regrowth, in early days, after a thyrotomy for cancer is not necessarily malignant.

FIG. 3.



Granuloma following removal of malignant growth of right vocal cord.

(*b*) *Value of indirect laryngoscopy.*—The case shows that a considerable growth, indeed, practically an entire vocal cord, can be removed with one bite of the forceps used by the indirect, or, as some already call it, the "old method" of laryngoscopy. As I have practised Killian's direct laryngoscopy for 11 years I feel equally skilled with both methods and each method has its own well-marked indications. I very much doubt if the most expert endoscopist could have removed as large a growth as I did in this case, and certainly it could not have been done more quickly or less disagreeably. The indirect method allows of the forceps being sloped to the opposite side of the body, so that any growth on a cord can be more cleanly and completely seized than is possible with the limited action of cutting forceps working in a circumscribed circular tube. The importance of removing as large and intact a portion of growth as is possible is of the highest value when it is desirable to submit a suspected neoplasm to the microscope. It will be a loss to laryngoscopy, and to our patients, if the rising generation of throat surgeons neglects to acquire the gentler art of indirect laryngoscopy and limit themselves to the easier but rougher technique of direct examination.

(*c*) *Anæsthesia.*—Laryngo-fissure can be well carried out under local anæsthesia. I have employed it in one successful case, but I doubt if many of our sensitive patients in this country would submit to the moral ordeal. In the above case the operation lasted 85 minutes. Anæsthesia was induced by a mixture of 1 ounce of ether and 20 grains of hedonal to a pint of normal saline solution, the object of the hedonal being to diminish as far as possible the total amount of fluid passed into the circulation. Two pints and six ounces of this mixture were used corresponding to 2 oz. 2½ drm. of ether and

[4] The patient was shown before the Clinical Section of the Royal Society of Medicine on Feb. 14th, 1913.

46 grains of hedonal, including a certain amount of wastage. Probably 2 oz. of ether and 40 grains of hedonal were infused through the internal malleolal vein, just above the ankle. As administered by Dr. J. F. W. Silk the resulting anæsthesia was, from the operator's point of view, ideal. The field of operation was quite clear of the anæsthetist and his paraphernalia, and the patient's sleep was tranquil and even. But the profound sleep in which she continued to be plunged next day gave me some anxiety. For 24 hours it was difficult to rouse her, and I thought what a serious condition might have arisen if, peradventure, she had inspired any blood during the operation and we had wished her to cough up the resulting bronchial or pulmonary catarrh. I would suggest that in future cases the hedonal be reduced to a minimum, if it cannot be dispensed with.

In another case I had there was some thrombosis of the lower part of the internal saphena vein, and this kept the patient in bed when he ought to have been up and about. Besides, I am not quite sure whether it is wise to flood the circulation with over two pints of liquid, and it is difficult to keep within this limit unless some such drug as hedonal be employed with its corresponding tendency to prolonged and profound after-sleep. Anyhow, the method of anæsthesia by intravenous infusion of ether has not yet established itself, in my opinion, for these cases and it still requires consideration. In my more recent cases I have returned with satisfaction to the use of chloroform employed in the usual way.

Wimpole-street, W.

A NOTE ON

A METHOD BY WHICH REMEDIAL AGENTS MAY BE MINGLED WITH THE CEREBRAL CEREBRO-SPINAL FLUID.

BY CHARLES A. BALLANCE, M.V.O., M.S. LOND., F.R.C.S. ENG.,

SURGEON TO ST. THOMAS'S HOSPITAL AND TO THE WEST END HOSPITAL FOR NERVOUS DISEASES, ETC.

SOME time ago Dr. Harry Campbell asked me to introduce salvarsanised serum into the cranial cavity in such a way as would admit of the serum coming in contact with the brain cells the life of which was in danger from the syphilitic virus. The consideration of this suggestion naturally led the mind along two lines of thought: (1) the argument for this plan of treatment, and (2) the best method to adopt for the purpose in view.

I.—*The Argument.*

There is a general belief that while anti-syphilitic remedies are useful in the gross lesions of meningeal syphilis, they are quite ineffective in the lesions of parenchymatous cerebral and spinal syphilis. There is some evidence that the injection of salvarsanised serum into the subarachnoid space of the spinal theca has been followed by improvement in the signs and symptoms of certain early cases of spinal syphilis. It is also fairly certain that the injection of the serum into the spinal theca is less efficacious in the lesions and symptoms of cerebral syphilis than it is in the early stages of spinal syphilis. The question therefore arises whether benefit would follow the introduction of salvarsanised serum into the subarachnoid spaces of the brain. Is it not fair to conclude from a comparison with the results obtained by the injection of the serum into the subarachnoid spaces of the spinal theca that the answer to the question may be in the affirmative?

In all the great emergencies of surgery early diagnosis alone can lead to early and successful operation. No emergency can be more urgent than that which has for its object the saving of the life of nerve cells. The method proposed therefore can only be effectual in the very earliest stage of cerebral disease, that is, before extensive damage has been done to the brain cells. The preclinical stage of cerebral disease is therefore the ideal time for the commencement of treatment. In these earliest cases repeated injections may possibly be necessary. How, then, can salvarsanised serum be introduced into the cerebral subarachnoid space so that it may mingle with the cerebral cerebro-spinal fluid and destroy the spirochæte which is threatening the life of the brain cells?

Key and Retzius in their classical work published in 1875 showed that the subdural and subarachnoid spaces of the brain of man did not communicate except in the Pacchionian bodies which are found in relation with the superior longitudinal, the lateral, and the straight sinuses. The simultaneous injection of the subdural and subarachnoid spaces by differently coloured fluids was successfully carried out, and the only places where they mingled was in the Pacchionian bodies. If the injections were continued the coloured fluids made their way into the lumina of the venous sinuses. It would seem, then, that salvarsanised serum to be effective must be introduced not into the subdural but into the subarachnoid space, because it is within this space that the brain and its cells are placed. The cerebro-spinal fluid bathes and nourishes the brain cells. Is it not fair to hope, then, that the integrity of the brain cells in cerebral syphilis may be maintained if salvarsanised serum is mixed with the cerebral cerebro-spinal fluid?

The anatomical injections of Key and Retzius have a great and permanent value. The experiments of Dr. Golla on the distribution of colloidal carbon when injected under the cerebral or spinal dura mater of the living animal are of surpassing interest. They strike a new note in the living anatomy and pathology of the nervous system, and may open a new path for the treatment of cerebral and spinal disease. For long years neurology has been living more or less in the stage of "dead meat" pathology. This period was reached in general pathology when I first entered the profession, for then the members of the Pathological Society of London were solely engaged in showing at their meetings specimens of disease obtained from the post-mortem room and microscopical specimens of the same. What is now urgently required is a great scheme for the endowment of research into the living pathology of neurological disease—for the quest of the intimate causes, living and chemical, of the diseases of the nervous system.

The arachnoid membrane in man is a very definite membrane. It consists of riband-like bundles of fine fibrous tissue interlaced with one another. The intervals between these bundles are filled up by delicate membranes. Several layers of this tissue, arranged in a complex way, constitute the arachnoid proper (Quain's Anatomy). The trabeculæ and membranes which cross the

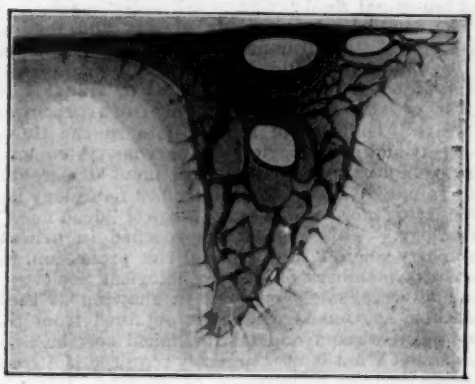
subarachnoid space consist of similar fine fibrillar tissue, and are continuous with the intertrabecular cell membranes of the arachnoid itself. When I introduced 6 c.c. of salvarsanised serum into the subdural space, it only remained there when the tube and glass vessel were raised to a considerable height. On lowering the glass vessel the serum returned into it. The glass vessel was again raised and the serum caused to return into the subdural space. The fine hollow needle was then withdrawn and from the puncture in the dura caused by the needle the serum spurted out under pressure.

When the arachnoid membrane is dissected off the convolutions and arranged so as to form a vessel it holds water without a leakage. Though in the living state diffusion of fluid may occur in man through the arachnoid membrane, there is obviously no gross opening between subdural and subarachnoid spaces.

The amount of cerebro-spinal fluid normally present has been estimated at from 120 to 200 grammes (Testut). It is found in the ventricles, in the cisterns at the base of the brain, and in the brain tissue itself. The brain, like a sponge, holds in its tissue much cerebro-spinal fluid. In the practice of surgery displacement of certain regions of the brain by gentle continuous pressure is a common event. This displacement is effected by displacement of the fluid which is normally contained in the substance of the brain. The specific gravity of the brain substance (1030) is not greatly in excess of that of water, and on its "liquid texture" depends, in some measure at any rate, the hope of success in the treatment of cerebral disease by the introduction of remedial agents into the cerebro-spinal fluid.

The arachnoid membrane passes from convolution to convolution. The spaces or sulci between the convolutions are part of the subarachnoid space. The subarachnoid space of each sulcus is

FIG. 1.



The subarachnoid space in man between the convolutions. The space is here broken up into a number of channels through which the cerebro-spinal fluid finds its way. Some of the sheaths of the pial arteries are shown perforating the cortex. The fluid of the subarachnoid rivulets is in communication with the fluid in the sheaths of the pial arteries. (Key and Retzius.)

broken up into a number of channels (Fig. 1), through which the cerebro-spinal fluid finds its way. These subarachnoid rivulets are continuous with the sheaths of the pial arteries which supply the cortex with blood.

The terminal distribution of the arterioles of the pia in the cerebral substance is important in that each arteriole is surrounded by a wide lymph sheath which conveys the cerebro-spinal fluid from the cortical subarachnoid space into the substance of the brain and around the nerve cells. The arterioles are divided into long or medullary and short or cortical vessels. The short arterioles break up into a fine network in the grey matter of the cortex.

The cerebro-spinal fluid is a secretion from the cells lining the subarachnoid space and covering the choroid plexuses, and of course, like all secretions, comes from the blood; hence the main source of this fluid would appear to be from the choroid plexuses and from the arterioles of the pia mater. The choroid plexuses are covered by the same epithelium which lines the ventricles, and these cells and others lining the boundaries of the subarachnoid space seem to have a selective action which prevents the escape of antisyphilitic remedies, such as mercury and arsenic, from the blood into the cerebro-spinal fluid.

It is hardly to be believed that the cerebro-spinal fluid in health is not in movement. A stagnant fluid could not be the means of nourishment of brain cells, and movement is a law of life. Clinical experience in cases of intradural injury, meningitis, and hydrocephalus helps us to picture to some extent the course of the stream of the cerebro-spinal fluid. As the secretion of this fluid may be supposed to be most active in the region of the choroid plexuses of the ventricles, it must have means of exit from the ventricles. It can escape from the ventricles through certain known pathways—the foramen of Majendie, the foramina in the lateral recesses of the fourth ventricle (Luschka), perhaps also at the clefts described by Merkel in the descending cornua of the lateral ventricles, and perhaps also through some lymphatic vessels around arterioles on the surfaces of the ventricles into the cerebral substance. What is certain is that when the foramina in the roof of the fourth ventricle are closed by meningitis internal hydrocephalus results, so that the other means of escape of cerebro-spinal fluid from the ventricles can be only of slight service and are ineffective in emergencies. I have often noticed at post-mortem examinations that the foramen of Majendie is a distinct opening of considerable size. It is well shown in the "Atlas of Human Anatomy" of Spalteholz, Vol. III., Fig. 703. Testut and Poirier and Charpy give its measurements as 8 mm. × 6 mm.

In cases of intradural injury and hæmorrhage the fluid withdrawn by lumbar puncture a few hours afterwards is blood-stained. In the ordinary subarachnoid cerebral meningitis the fluid withdrawn by lumbar puncture is turbid and purulent. These results would not be obtained if the cerebro-spinal fluid was stagnant.

In cases of meningitis, especially of the fulminating variety, in which the pus is always subarachnoid in position, the spread of the inflammation from the basal cisterns upwards over the cortex towards the superior longitudinal sinus and Pacchionian bodies is explained in part, I think, by the current of cerebro-spinal fluid following this course. In this form of meningitis the arachnoid protects the subdural space, which is often unaffected by the presence of the pus beneath the arachnoid. The pus fills up the sulci between the convolutions and soaks into the cortex along

the sheaths of the pial vessels. This is exactly the voyage which it is desired that remedies should take when mingled with the cerebro-spinal fluid in order that they may counteract the lethal effects of the poisoning of the cortical brain cells.

When pus collects in the cerebral subdural space it spreads out over the arachnoid as a flat sheet. This I have several times observed. The sheet of pus can be wiped off the outer side of the arachnoid—the membrane itself looking afterwards unaffected and the subarachnoid spaces between the convolutions being free of contamination. In cases of subdural hæmorrhage, which is an ingravescent condition and slowly extends from repeated small hæmorrhages, I have several times peeled the blood cyst thus formed off the outer surface of the arachnoid and then observed that neither the arachnoid membrane nor subarachnoid space beneath it was stained by blood pigment. These facts dispose of the view that there is any gross communication in man between the subdural and subarachnoid spaces.

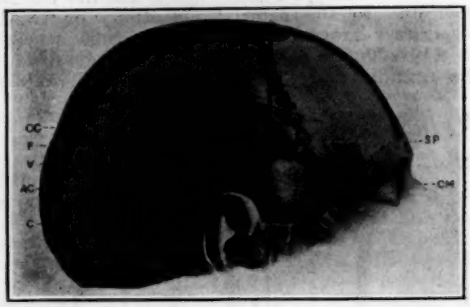
It would appear, then, probable that the cerebro-spinal fluid, having flowed out of the ventricles, passes down the spinal canal, and escapes along the sheaths of the spinal nerves. It also enters the numerous cisterns at the base of the brain, passes out through the sheaths of the cranial nerves, and streams upwards over the external face of the hemispheres under the cortical arachnoid. The largest cortical river flows from the "lac Sylvien" and divides into two streams, the "flumen Rolandien" and the "flumen Sylvien" (Testut). It is just in the territory watered by these streams that the manifestations of meningitis are often most advanced and most obvious. The larger streams divide into numerous rivulets which are found in all the sulci between the convolutions. The rivulets in the sulci are continuous, as we have seen, with the fluid in the sheaths around the pial arterioles. The arterioles penetrate the cortex and the cerebro-spinal fluid in their sheaths is conveyed to and flows around the cells of the grey matter of the cortex.

It is clear then that salvarsanised serum or other remedies introduced into the subarachnoid space of the brain will reach the nerve cells. What is the best plan to adopt in order to get the serum into the subarachnoid space of the brain? Should it be injected into the substance of the brain, or into the cisternæ at the base, or underneath the arachnoid of the cortex, or into the ventricles? There are certain obvious objections to the injection being made into the substance of the brain, and a considerable operation would be necessary if the serum was injected into the basal cisternæ. To inject the serum underneath the arachnoid over the cortex might injure the surface of the brain, and the opening made for the passage of the cannula might allow of its subsequent escape. These considerations seemed to point to the lateral ventricle as the best site for the injection.

II.—*The Method Chosen and Operation Performed*

The patient was anæsthetised and the head arranged in a position as nearly vertical as possible. A trephine opening was made to the right of the middle line just in front of the bregma. (Fig. 2.) The dura was then opened and the inner surface of the right cerebral hemisphere was gently drawn outwards by means of a retractor (1 cm. wide) bent at a right angle. It had previously been ascertained that the anterior cornu of the lateral ventricle was distant 6½ to 7 cm. (roughly 2½ to 2¾ inches) from the surface of the scalp at the mid-line on the vertex. A cannula (having a lumen of 1 mm. and a length of 3 inches)

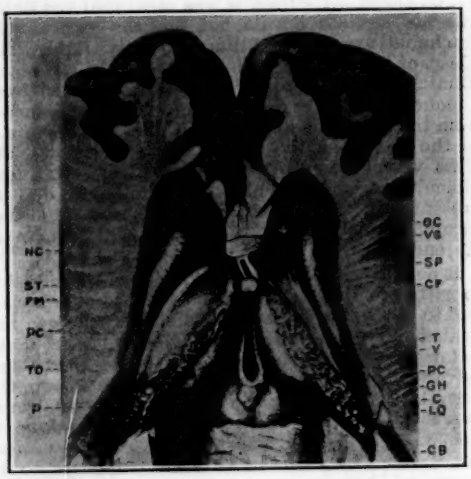
FIG. 2.



Lateral view of skull with the position of the ventricles indicated. The site of the trephine opening for the introduction of the trocar and cannula used for perforating the anterior part of the corpus callosum is shown. The trocar and cannula (1 mm. lumen) perforate the corpus callosum about ¼ inch from the middle line, and enter the anterior cornu of the lateral ventricle. SP, Septum pellucidum. CM, Corpus mammillare. CC, Corpus callosum. F, Fornix. V, Ventriculus III. AC, Aquæductus cerebri. C. Cerebellum. (From Hermann's "Lehrbuch der Topographischen Anatomie.")

was then passed through the anterior part of the corpus callosum about a quarter of an inch to the right of the middle line. It was felt to enter a cavity—namely, the anterior cornu of the lateral ventricle. (Fig. 3.) The cannula was fitted with a stylet

FIG. 3.

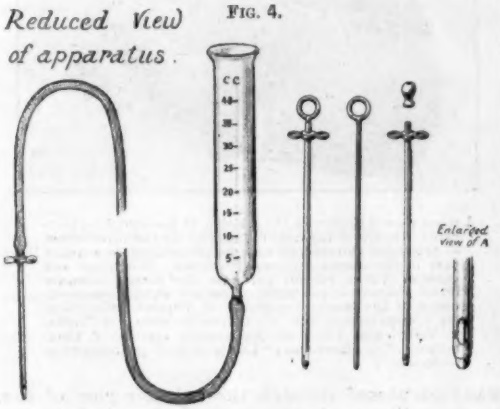


Horizontal section of brain. The trocar and cannula perforate the corpus callosum ¼ inch from the middle line and enter the pool of fluid (marked with a white +) in the anterior cornu of the lateral ventricle. NC, Nucleus caudatus. ST, Stria terminalis. FM, Foramen interventriculare (Monroi). PC, Plexus choroideus lateralis. TO, Thalamus opticus. P, Pulvinar. GC, Genu corporis callosi. VS, Vorderhorn des Seitenventrikels. SP, Septum pellucidum. CF, Columnæ fornicis. T, Tænia. V, Ventriculus III. PC, Pedunculi conarii. GH, Ganglion habenulæ. C, Conarium. LQ, Lamina quadrigemina. CB, Cerebellum. (From Hermann's "Lehrbuch der Topographischen Anatomie.")

whose rounded end projected beyond the end of the cannula. (Fig. 4, A.) The passage of the stylet

and cannula through the corpus callosum could not divide any vessel and might be thought of as pushing aside rather than cutting any of the commissural fibres of the corpus. On the entrance of the cannula into the lateral ventricle the stylet was withdrawn and cerebro-spinal fluid escaped, not continuously, for there was a distinct ebb and flow due to the arterial pulsations or to the respiratory movements. A rubber tube attached to a graduated glass vessel was then fixed to the cannula and the infusion into the ventricle

FIG. 4.



commenced, at first with normal saline solution and then with salvarsanised serum; of the serum varying quantities have been used from 35 c.c. to 60 c.c. As the infusion proceeded it was noticed that the brain bulged into the trephine opening, but on closer inspection it was clear that the bulge was not a brain hernia, but that the cortical subarachnoid space was filling up with fluid. The 90 c.c. of fluid (salt solution and serum) took about 20 minutes to infuse and the pressure varied from 6 inches to 18 inches. No ill-effects have occurred from the injection of the serum into the ventricle. In the first case the fluid flowing very slowly the glass vessel was raised when a little respiratory difficulty occurred which was probably due to pressure in the fourth ventricle, the fluid not escaping quickly enough through the foramen of Majendie.

It only remained at the conclusion of the infusion to withdraw the cannula from the lateral ventricle and to stitch up the scalp, which in each case has healed by first intention. No ill-effects have followed the infusion. I have now introduced salvarsanised serum on five occasions into the lateral ventricle; twice in two patients and once in a third patient. The first operation was done on Feb. 25th, 1914, and was repeated on this patient on March 11th, 1914. This case appears to be improved, but Dr. Campbell will no doubt record the results at a later stage. Only a very large experience would justify a claim that the new methods would cure or arrest cerebral or spinal disease, as typified in general paralysis or tabes. In the third case, as related above, an unsuccessful attempt was made to infuse the serum by way of the subdural space, and a fortnight later the serum was introduced into the lateral ventricle. To the serum in this third case was added 0·009 gramme of neosalvarsan: that is one-hundredth of the intravenous dose. The serum used in these cases was obtained from blood drawn one hour after the intravenous injection of neosalvarsan.

On the operation being performed a second time in one of the cases it was noticed that there was a considerable collection of fluid within the dura, the brain being somewhat shrunk away from the dura. This fluid was allowed to run out by lowering the head, and a space then existed beneath the dura which would have taken all the salvarsanised serum that was available, but it was decided to infuse the serum again into the ventricle. The collection of fluid beneath the dura was cerebro-spinal fluid which had escaped from the subarachnoid cistern around the corpus callosum. Between the inferior border of the falx and the corpus callosum there is a large cistern—the spatium subarachnoidale corporis callosi. The wall of this space is broken by the passage of a spatula which is passed down between the inner surface of the brain and the falx cerebri to the corpus callosum, and cerebro-spinal fluid at once flows out of the cistern.

The method above described may perhaps be useful for introducing remedial agents into the cerebral cerebro-spinal fluid in other diseases of the brain besides that caused by syphilis. Sleeping sickness, meningitis, tetanus, and epilepsy are such diseases. The passage of the cannula through the corpus callosum appears to be innocuous, and the operation as a whole with reasonable care is free of all danger.

Addendum.

When this paper had been completed (April 20th, 1914) Dr. Purves Stewart kindly drew my attention to one by Dr. Marinesco and Dr. Minea published a month before. Marinesco and Minea[1] state that Marinesco in 1911 began to treat syphilis of the nervous system by injecting into the spinal arachnoid cavity the serum of syphilitic subjects who had been treated with salvarsan, and that in some cases good results were obtained in spinal syphilis and in the gastric crises of tabes. In their history of the subject they refer to the following:—1. Robertson[2] adopted the same treatment, and claimed amelioration in 50 per cent. of his cases. 2. Swift and Ellis in the Rockefeller Institute adopted the following technique. An hour after an intravenous injection of salvarsan they drew 40 c.c. of blood; this was centrifuged after coagulation. The next day to 12 c.c. of the serum were added 18 c.c. of physiological saline solution and the mixture was heated for half an hour to 56° F. A certain quantity of this diluted serum was injected into the spinal arachnoid of tabetics and general paralytics. 3. Several observers have tried injection of salvarsan into the spinal arachnoid. 4. Sicard and Lapointe, after preliminary experiments with physiological saline solution, injected 1/10th of a milligramme of mercuric cyanide dissolved in 5 c.c. of saline solution into the cerebral subarachnoid space, and later tried minimal doses of neosalvarsan by the same method. 5. Förster in general paralytics injected partly into the cerebral arachnoid and partly *into the ventricles* 20 c.c. of their own serum.[3] Marinesco and Minea make bilateral subarachnoid injections of serum salvarsanised *in vitro*, in the neighbourhood of the second frontal convolution. "We think," they say, "that the best apparatus is that of Neisser-Polak, by which the puncture can be made

[1] Revue Neurologique, March 15th, 1914, pp. 337 et seq.
[2] Edinburgh Medical Journal, 1913, vol. i., p. 428.
[3] Congrès de Psychiatrie et de Neurologie, November, 1913.

in less than a minute, and which makes a minimal opening; we believe that a trephine opening is needless even if it is desired to introduce a considerable quantity of fluid. For the present, at all events, we prefer serum salvarsanised *in vitro* by adding 40 or 50 milligrammes of neosalvarsan to 5 c.c. of serum obtained from the patient and rendered inactive. That is the dosis optima tolerated by the brain and one which very rapidly arrests the movements of the treponema pallidum. ..... The injections should be limited to the subarachnoid space and should not damage the cerebral cortex."

It will be seen that Marinesco and Minea refer to Förster as having injected serum into the ventricles of general paralytics, but in the *Münchener Medicinische Wochenschrift*[4] a different reading of Förster's paper is given as follows: "Förster read a paper at the Congress at Jena (Nov. 1st and 2nd, 1913) on Some Inoculation Experiments. He obtained by cranial puncture fragments of the brains of general paralytics, and planted them in guinea-pigs and monkeys. These fragments of the cerebral cortex contained active spirochætes in large numbers. He concluded by saying that '*we might take advantage* of the well-known susceptibility of the spirochæte to the antibodies in the blood by bringing these bodies into direct contact with the brain by injecting the patient's own serum into the subdural space or the ventricle.'" Unfortunately, I have not yet been able to obtain a copy of the transactions of the Jena Congress. The plan of cranial or orbital puncture for the introduction of remedies into the cranial cavity does in no way commend itself to me. The remedy in these desperate cases should be given in a scientific and precise manner. The "minimal opening" seems to me utterly wrong. It is impossible with a "minimal opening" of the cranial cavity or by passing a hollow needle through the sphenoidal fissure[5] to know exactly where the remedy has been injected. A trephine opening and a deliberate operative method is the only way at present known of scientifically injecting remedies into the cranial cavity. The circle of bone if thought desirable can be replaced at the conclusion of the operation. Desperate diseases require desperate remedies if any good is to be attained. Some may think apparently that a trephine opening is a desperate measure, but no one with any experience of modern cranial surgery would give his assent to such a view.

Harley-street, W.

[4] 1913, p. 2700.

[5] Beriel: Neurologisches Centralblatt, 1914.

POST-GRADUATE COLLEGE, WEST LONDON HOSPITAL.—A conversazione was held at the West London Hospital on Wednesday evening, May 20th. The guests were received by the senior surgeon (Mr. A. Baldwin) and the dean of the college (Mr. Donald J. Armour). An admirable musical performance was given by the string band of King Edward's Horse, and kinematographic views of the Panama Canal and of various interesting continental localities were shown. Some really excellent drawing-room magic was provided by Mr. Herbert J. Collings. There were exhibitions of optical, surgical, ophthalmic, X ray, and other scientific instruments, drugs, and medical publications. Dr. R. R. Elworthy showed favus and other preparations, and Dr. Reginald Morton stereoscopic and other radiographs. Refreshments were provided in the lecture-room.

THE TREATMENT OF PARENCHYMATOUS SYPHILIS BY INTRACRANIAL MEDICATION.

BY HARRY CAMPBELL, M.D. LOND., F.R.C.P. LOND.,
PHYSICIAN TO THE WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, ETC.

SYPHILITIC diseases of the central nervous system fall under two heads—those in which the spirochætes infest the meninges and the walls of the blood-vessels, producing such lesions as gummata, meningitis, and endarteritis; and those in which the parasites get lodged between the nerve cells (i.e., in the perineuronic lymph spaces), giving rise to a primary parenchymatous degeneration, of which dementia paralytica, tabes dorsalis, and tabo-paresis are the commonest manifestations.

These two varieties of syphilis of the nervous system—the *interstitial* and the *parenchymatous*, as we may term them—exhibit many differences. The most noteworthy of these is that which relates to the effect of treatment upon them. While the interstitial variety is in large measure amenable to antisyphilitic remedies (salvarsan, mercury, potassium iodide) conveyed through the blood, parenchymatous syphilis, on the other hand, is wholly, or all but wholly, uninfluenced by treatment of this kind. The explanation probably lies in the fact that the drugs in question are incapable of percolating the walls of the capillaries which supply the lymph environing the nerve cells of the central nervous system, and thus are unable to reach the spirochætes ensconced between these cells.

The problem which confronts us in the treatment of parenchymatous syphilis would thus seem to be, how to get our spirillicidal remedies conveyed to the perineuronic lymph spaces. A ready means presents itself. All that is necessary is to introduce them into the subarachnoid space, either directly, or indirectly *vid* the cerebral ventricles. Dr. F. W. Mott has long taught that the perineuronic lymph and the cerebro-spinal fluid are practically the same; and Dr. F. L. Golla has recently shown that a certain amount of the cerebro-spinal fluid in the subarachnoid space does, in point of fact, flow by way of the perivascular lymph spaces of the brain and spinal cord into the perineuronic lymph spaces, whence it drains off into the capillary venules. The method he adopts is to inject the subarachnoid cavity with colloidal carbon, allowing the animal to survive the injection some days, so as to give time for the translation of the carbon particles. These do not pass through animal membranes, and thus can only travel along open channels. Dr. Golla has kindly afforded me the opportunity of examining microscopically sections of the brain and spinal cord of animals thus treated, and it has been quite easy to trace the dark particles along the perivascular sheaths into the perineuronic lymph spaces, and even indeed into the nerve cells themselves. We thus see that, though spirillicidal substances cannot be conveyed to the perineuronic spaces through the blood stream, they can be made to reach these spaces by the route described, thus coming to grips with the spirochætes.

A question of importance in connexion with this mode of treatment is the direction in which the cerebro-spinal fluid flows within the subarachnoid space. Does the direction of the flow, e.g., permit

of our remedies, when introduced into the spinal sac, reaching the cerebral cortex?

The cerebro-spinal fluid appears to be secreted partly by the cells covering the choroid plexuses within the ventricles, and partly by those lining the subarachnoid space. That derived from the ventricles escapes into the subarachnoid space by certain apertures, notably by the foramen of Majendie in the roof of the fourth ventricle—i.e., it passes chiefly, if not entirely, into the lower, subtentorial cranial chamber. As regards the flow of the cerebro-spinal fluid contained in the subarachnoid space, it is probably sluggish, moving mainly caudal-wards, though influenced somewhat by gravity. The flow is probably in large measure determined by the rhythmic pulsations (cardiac and respiratory) of the brain and spinal cord. These by commoting the fluid lead to an ebb and flow at the foramen magnum, the incisura tentorii (connecting the upper and lower cranial chambers), and the various orifices between the ventricles and the subarachnoid space. Hence some interdrainage of the fluid is continually taking place between the spinal sac and the lower cerebral chamber (containing the cerebellum, medulla, and pons), between the lower and the upper cerebral chambers, and again between the ventricles and the cranial subarachnoid space. In short, these rhythmic commotions lead to such a churning up of the fluid that a substance introduced into any part of the subarachnoid space (supra-tentorial, infra-tentorial, or spinal) tends to diffuse itself throughout the entire space. Thus when colloidal carbon is introduced subdurally above the tentorium it blackens the entire brain and spinal cord, and even to some extent the interior of the ventricles. The like happens when it is injected into the spinal arachnodural sac, though in this case little blackening of the cerebral hemispheres occurs. Indeed, Goldmann, after injecting trypan blue into the spinal sac, found them unstained. Golla, on the other hand, employing colloidal carbon and allowing some days to elapse before destroying the animal, found definite blackening of the hemispheres.

It would appear from these injection experiments that a considerable interchange of the fluid takes place between the spinal sac and the lower cranial chamber (at the foramen magnum), but that as regards the upper and the lower cranial chambers (communicating with one another at the incisura tentorii) the flow is mainly caudal-wards; and that while it is possible to convey our medicaments more or less evenly throughout the entire cerebro-spinal axis by introducing them into the upper cranial subarachnoid space, and also to reach the entire spinal cord, bulb, and cerebellum, by introducing them through the spinal sac, it is not possible by this latter method to convey more than a very small fraction of them to the cerebral hemispheres. This explains why in tabes intraspinal injections usually suffice, and why in general paralysis they are comparatively useless. If we rely upon intraspinal injections in the latter disease, the flow of the cerebro-spinal fluid from the spinal sac into the cranial cavity should be encouraged by raising the foot of the bed and allowing the patient's head to be at a lower level than the sacrum; also by urging him to turn about from side to side, and thus by commotion of the fluid to favour the diffusion of its spirillicidal contents. But even so we shall not succeed in carrying more than a very small proportion of the injections to the main seat of the spirochætes—the cerebral cortex. (It must not be forgotten, in considering the beneficial results of intraspinal injections in dementia paralytica, that the lesions in this disease are not confined to the cerebrum, but that they also affect the cerebellum, bulb, and spinal cord.)

It was the consciousness of our inability to convey our remedies in sufficient quantity to the cerebral cortex by the intraspinal route that led me to approach Mr. C. A. Ballance with regard to the possibility of introducing them directly into the cranial cavity. I had seen such striking results from the employment of intraspinal injections of salvarsanised serum in tabes as to make me hopeful of equally good results in dementia paralytica, if only the serum could be conveyed in sufficient quantity to the cerebral cortex. I had hoped that it could be introduced directly into the subarachnoid space of the upper cranial cavity by means of a small trephine opening, but Mr. Ballance has convinced me, by actual demonstration on the operating table, that it is very difficult, if not impossible, to introduce more than a very small quantity of fluid in this way. For this method to be successful we shall have to dispense with bulky remedies and rely upon remedies which are effective in quantities not exceeding a few cubic centimetres.

Mr. Ballance decided that the best way to introduce so large a quantity as, say, 40 c.c. of serum into the cranial subarachnoid space would be *vid* the anterior horn of the lateral ventricle, by means of a cannula passed along the side of the falx cerebri through the corpus callosum; and this operation he performed successfully on a case of general paralysis on Feb. 25th. The patient made a rapid recovery. The operation was repeated on March 11th, and this time five drops of Fowler's solution were added to the serum. Convalescence on this second occasion was attended by slight mental disturbance, the result, I am inclined to think, of the Fowler's solution. There is no doubt that this patient's mental state has improved since these operations, but how far the improvement is the result of the treatment it is yet too early to say. Mr. Ballance has twice successfully performed the same operation on a second case of general paralysis. In this case the cortical degeneration had already reached an advanced stage, and I am not satisfied that any substantial improvement in the mental condition has been effected.

The intraventricular operation was undertaken in the belief that by its means a considerable proportion of the serum introduced is enabled to reach the upper cranial chamber, where it can circulate freely over the cerebral cortex. We have seen, however, that most, if not all, of the intraventricular cerebro-spinal fluid escapes through the openings of the fourth ventricle into the subarachnoid space of the inferior cranial chamber, and that thereafter it tends to pass downwards through the foramen magnum, rather than upwards through the incisura tentorii. This suggests that the trend of the serum injected intraventricularly is in the same direction. For this reason it is advisable to keep the head low after the intraventricular operation so as to favour the passage of the fluid through the incisura; but even assuming that only a small proportion of the serum injected intraventricularly reaches the cerebral cortex, we may, I think, safely conclude that much more reaches it by this method than by the intraspinal one, owing to the much greater supply of serum which reaches the inferior cranial chamber by

the intraventricular method. The most satisfactory way of ascertaining to what extent the intraventricular cerebro-spinal fluid reaches the cerebral cortex would be by injecting the ventricles with colloidal carbon, an experiment which Dr. Golla has not been able to carry out with the animals at his disposal.

I have said that in tabes spinal injections usually suffice, for by their means the whole of the affected area of the central nervous system can be reached by the injections. There is, however, one form of tabes in which the question of resorting to intracranial injections presents itself—that form, namely, in which optic atrophy, generally of a rapidly progressive character, occurs. There is every reason to believe that the atrophy in these cases is due to the presence of spirochætes in the immediate neighbourhood of the optic nerves. It should be observed that the arachnoid membrane forms but a loose investment round the optic nerves, and thus allows the cerebro-spinal fluid to circulate freely about them. Dr. Golla's experiments have shown that when colloidal carbon is introduced subdurally into the upper cranial chamber the walls of the peri-optic subarachnoid space are blackened with carbon particles, and, moreover, that these can actually be traced into the nerves themselves. Now, it is true that the optic nerves can be reached by intraspinal injections, but certainly not so effectively as by the intracranial route. It was for this reason that I sought the help of Mr. Ballance in a case of tabetic optic atrophy with complete blindness of one eye and almost complete blindness of the other. This was the case in which the attempt was made to introduce the serum subdurally, and in which it was found impossible to get more than a very small quantity to remain under the membranes. Directly the cannula was removed, almost the whole of what had been introduced escaped through the opening in the dura. In a subsequent operation the intraventricular method was adopted, and there can, I think, be little doubt that this method affords the most effective way of reaching the optic nerves, for the serum rapidly passes into the peri-optic subarachnoid spaces, where it can soak into the optic nerves. The patient recovered from the operations, but the optic neurons had already been injured beyond recovery, and he has since lost the small degree of sight that was left to him at the time of the second operation. Nevertheless, it seems reasonable to hope that we may be able to arrest these cases of optic atrophy by means of suitable intracranial injections.

A word of caution in conclusion. The plan of treating syphilitic diseases of the central nervous system by the introduction of remedies into the cerebro-spinal fluid opens a new chapter in therapeutics, and has, I believe, a great future before it; but it is one beset with many dangers, and needs to be carried out with the utmost caution, not only in regard to strict asepsis—that goes without saying—but also as regards the remedies employed, and the strength, number, and intervals of the injections. It must not be forgotten that in introducing remedies into the cerebro-spinal fluid we are, as it were, going behind one of nature's defences—the capillaries of the central nervous system. When, e.g., arsenic is administered intravenously, intramuscularly, or by the mouth, it does not reach the neurons of the central nervous system; it is prevented from reaching them by the local capillaries, which constitute an important line of defence against poison circulating in the blood. When, therefore, it is introduced into the cerebro-spinal fluid only very minute doses shall be employed.

Wimpole-street, W.

THE INTRATHECAL INJECTION OF SALVARSANISED SERUM.

BY GORDON W. SPENCER, B.A., M.B., B.C. CANTAB.,
HOUSE PHYSICIAN, BRISTOL ROYAL INFIRMARY.

THE diseases of tabes dorsalis and general paralysis of the insane were, until quite recently, always looked upon as being "parasyphilitic" in origin, or, in other words, diseases which follow on in the wake of syphilis rather than being definitely attributable to it. Following the discovery of the spirochæta pallida by Schaudinn and the successful inoculation of anthropoid apes by Metchnikoff, Neisser, and others, the researches of Mott,[1] Noguchi,[2] Marie,[3] and Levaditi, who have found the spirochæta pallida in films from the brains of general paralytics, have conclusively proved the syphilitic origin of the diseases in question.

These diseases were usually treated with mercury and potassium iodide; very little benefit was derived from this or other antisyphilitic treatment, but the reason for the disease not responding to treatment was not at first obvious. An explanation has been found in the selective action of the choroid plexus, which allows practically no drugs or antibodies to pass through into the cerebro-spinal fluid. In proof of this are the facts: (*a*) that the spinal cord and fluid do not become stained in jaundice; (*b*) that mercury and arsenic are not present, or only in minute traces after the patient has been taking the drug for some time; and (*c*) that if trypan blue be injected intravenously the cord or fluid does not become stained. It is, therefore, obvious that if we are to reach the spirochætes, which we now know are present in the brain and cord, we must place our antisyphilitic remedies into the cerebro-spinal fluid itself.

Intravenous injections of salvarsan and neosalvarsan having failed to give relief it occurred to Dr. Swift,[4] of the Rockefeller Institute, to try the intrathecal injection of the serum of a patient who had had salvarsan. Nierenstein,[5] working with atoxyl, has shown that arsenic by itself has no effect upon trypanosomes *in vitro*. Upon adding protein death occurred after a certain time, but this time was much lessened if the atoxyl was allowed to combine with the protein first and then added to the trypanosomes. This then provides the rationale of our present treatment, as there is only a minute quantity of protein in the cerebro-spinal fluid; so the neosalvarsan is given intravenously first, and then the serum derived from the patient, which will therefore contain the arsenic-protein compound, is injected intrathecally.

Technique.—An intravenous injection of neosalvarsan 0·75 grm. is first given. In this series of experiments the neosalvarsan has been given in concentrated solution, never more than 10 c.c. of doubly distilled water being used to dissolve it, and the injection has been made with a "record" syringe without previously dissecting out the vein. The two main points to notice are: (1) the importance of using doubly distilled water, which almost reduces to nothing the reaction to the drug; and (2) that the injection should be made by

puncture with a hypodermic needle without dissection, as patients are beginning to grumble and to refuse treatment on account of the tell-tale scar left in the anticubital fossa.

Twenty-four hours after the injection of neosalvarsan blood is withdrawn from a vein, again by puncture with a needle. Scrupulous asepsis must be observed, and it is advisable to wear sterilised rubber gloves during the operation. The blood is allowed to flow into six centrifuge tubes, each of about 15 c.c. capacity, and these are then plugged with sterile wool. After standing for an hour, to allow the blood to clot, the clot is loosened round the edges by means of a sterile platinum needle, and the tubes are then centrifugalised. The resulting serum is collected from the lot into a sterile tube.

Lumbar puncture is now performed in the ordinary way, and about an equivalent quantity of cerebro-spinal fluid to the amount of serum to be injected is drawn off. A syringe is then filled with the serum, and the serum forced into the intrathecal space. About one ounce of serum was given in each case. It is hardly necessary to emphasise the fact that all the above operations must be carried out with the strictest aseptic precautions, as the slight resistance of the spinal cord and cerebro-spinal fluid to infection is well known, and the danger to the life of the patient, should such occur, is obvious.

I have found the above method by far the most satisfactory, though it differs in many ways from that used by other observers. Campbell[6] withdraws the blood after six hours. A few experiments were performed to find out when the greatest percentage of arsenic is in the blood. The method used was colorimetric, and, contrary to expectation, it was found that the second day revealed the greatest quantity. Further experiments are necessary, and are being carried on, before this can be definitely asserted, but there was sufficient evidence to justify the delay to 24 hours in withdrawing the blood after the injection of neosalvarsan. This delay also ensures that the combination between the arsenic and the proteins in the blood has taken place.

By centrifugalisation a larger quantity of serum is obtained from a smaller quantity of blood, and I do not think that the risk of infection is increased if proper care is taken. Further, only 1½ to 2 hours need elapse between withdrawing the blood and the intrathecal injection. In this respect my method again differs from that of Dr. Campbell, who allows the blood to stand for 12 hours in a sterile bottle.

If trypan blue be injected by lumbar puncture it has been found that only the cord and brain stem become coloured with the pigment. It is therefore possible that none of the salvarsanised serum reaches the brain. If this is so, this method is only applicable in the treatment of tabes dorsalis and other syphilitic lesions of the cord, and cannot be used for the relief of general paralytics. In the cases about to be described an examination was made for the presence of arsenic in the blood, urine, and cerebro-spinal fluid 24 hours after the injection of neosalvarsan. Speaking roughly, arsenic was found in the blood and urine, but not in the cerebro-spinal fluid.

With regard to the reaction to the intrathecal injection it was found that in those cases where the injection was being given for the relief of the lightning pains of tabes the pains became very severe, almost excruciating, a few hours after the injection, but that they gradually passed off and the patient was altogether free from them at the end of 36 to 48 hours. There was usually a slight rise in temperature and pulse-rate during the first day, but this fell during the second. No untoward instances or complications occurred throughout the series.

Seven Cases of Tabes Dorsalis.

CASE 1.—Female, aged 38. No definite history of infection. Symptoms: Lightning pains which occurred daily; ataxy. Signs: Absent knee-jerks, Argyll Robertson pupils, and glove and stocking anæsthesia. Wassermann reaction positive. Has had no lightning pains for past four months; reflexes unaltered; health improved.

CASE 2.—Male, aged 34. Had gleet 28 years ago; no chancre. Seven years' history of increasing difficulty in walking. Had lightning pains about every other day. Signs: Absent knee-jerks, Argyll Robertson pupils, rombergism, patches of anæsthesia, and ataxy. Wassermann reaction positive. Has had no pains since injection; rombergism less marked; walks more steadily and can now feel the ground as he walks.

CASE 3.—Male, aged 39. Had soft sore 15 years ago. Had lightning pains for 11 years, with increasing difficulty in walking. The pains were very bad and he took morphia to relieve them. Signs: Bedridden, absent knee jerks, glove and stocking anæsthesia, incoördination, and incontinence. Wassermann reaction positive. The pains were absent for a week after injection but came on again. No lasting improvement noticed. The patient's blood from which the serum was made gave none of the reactions for arsenic, showing that possibly he was unable to split up the neosalvarsan molecule. Arsenic was recovered from the urine.

CASE 4.—Male, aged 42. Had gonorrhœa but no chancre. Four months' history of lightning pains, which had been very severe. Wassermann reaction positive. Has had no return of the pains since injection.

CASE 5.—Male, aged 46. Had gonorrhœa. Seven years' history of increasing difficulty in walking. Severe lightning pains, often requiring morphia. Signs: Absent knee-jerks, incontinence of urine, Argyll Robertson pupils, and glove and stocking and girdle anæsthesia. Wassermann reaction positive. Has had no lightning pains since injection. Gait improved and patient's health much better; rombergism less marked. Only slight improvement in incontinence.

CASE 6.—Male, aged 54. Ten years' history of lightning pains and difficulty in walking. Signs: Absent knee-jerks, Argyll Robertson pupils, and rombergism. Has had no pain since injection; walk steadier; feels better.

CASE 7.—Male, aged 52. Had a chancre 23 years ago. Three years' history of lightning pains. Charcot's knee one year. Signs: Argyll Robertson pupils and absent knee-jerks. Wassermann reaction positive. Pains much less since injection; health better; walk steadier.

Five Cases of Sclerosis and Interstitial Cord Lesions.

CASE 1.—Male, aged 29. Nine months' history of stiffness of legs and difficulty in walking. Signs: Lateral nystagmus; knee-jerks brisk, patellar clonus present on left side, and double extensor plantar response; incontinence of urine and fæces; greatly impaired mental state. Wassermann reaction positive. After injection slight improvement occurred in the movement of the legs and in his general mental condition. He seemed to know that he was passing his motions, but would not trouble to control them. The improvement was only temporary.

CASE 2.—Female, aged 38. Spastic paralysis of both legs for 18 months with contractures. Ankle clonus present on right side; extensor plantar response. Wassermann reaction positive. Intrathecal injection made no definite improvement.

CASE 3.—Male, aged 31. Sensory and motor aphasia; right hemiplegia; incontinence. Wassermann reaction positive after injection of neosalvarsan. After intrathecal injection patient appeared to take notice of his surroundings, which he had not done before, and he was able to move his right leg slightly. No improvement in incontinence, and he did not recover his speech.

CASE 4.—Male, aged 44. Pain at the bottom of his back and in his legs for eight months. Knee-jerks brisk, double extensor plantar response, rombergism; anæsthesia over feet; pupils equal and active; gait ataxic. Wassermann reaction positive. Much improved by injection; tingling in feet disappeared, rombergism less, ataxy improved and has had no pain; no alteration in reflexes.

CASE 5.—Male, aged 39. Soft sore four years ago. Difficulty in walking, vomiting and lassitude for one year. Knee-jerks exaggerated, double extensor plantar response, patellar clonus present; no alteration in sensation; pupils active; rombergism present. Wassermann reaction positive. The pain and vomiting were relieved and the rombergism was less marked, but patient does not feel any better.

McIntosh[7] has subdivided syphilitic lesions of the brain and spinal cord into "interstitial" and "parenchymatous." In the former the meninges, blood-vessels, and neuroglia are primarily affected, with secondary involvement of the neurons through compression and softening; in the latter the neurons themselves are affected. Tabes and general paralysis belong to the parenchymatous variety, and the above results seem to show that this type of cord lesion is more affected by the intrathecal injection than the interstitial.

Campbell[6] has published a series of 10 cases which seem to bear this out, but the patients treated by him were also given mercury. The above cases received nothing but the salvarsan, and so the improvement made is entirely due to the intrathecal injection, and this may account for the poor results obtained with the interstitial cases, as considerable improvement can be effected in them by the ordinary antisyphilitic treatment.

Conclusions.—The intrathecal injection of salvarsanised serum offers a hopeful method of treating and arresting the progress of tabes and other parenchymatous diseases of the spinal cord. Before its introduction these cases resisted all our efforts, and finally drifted into the asylums and workhouses. A cure of the lightning pains can almost definitely be promised. The injections, if carried out with special aseptic care and technique, do not endanger the patient's life. There is a great future before this treatment when further work has been done in perfecting it, as we are now working on definite scientific lines for the cure of a condition which has previously baffled all our efforts, mainly because the pathology has not been fully understood.

In conclusion, I wish to express my very best thanks to Professor F. H. Edgeworth for his kindness in allowing me to publish these cases and for his invaluable help and sympathy with the work. The technique of the method of neosalvarsan injection was due to Dr. J. A. Nixon, whom I wish to thank for this and for the permission to publish one of the above cases. The Wassermann reactions were carried out by Professor I. Walker Hall by Wassermann's original method, and this fact is sufficient guarantee of their absolute accuracy. I am also greatly indebted to Mr. J. Taylor for much valuable work in the estimation of the arsenic in the blood and urine.

Bibliography.—1. Mott: Degeneration of the Neurone in the Light of Recent Research. THE LANCET, Nov. 15th, 1913, p. 1367. 2. Noguchi and Moore: Demonstration of Spirochæta Pallida in the Brain in Cases of General Paralysis. Journal of Experimental Medicine, February, 1913. 3. Marie, Levaditi et Bauchowski: Présence constante du Tréponème dans le Cerveau des Paralytiques Généraux Mort en Ictus. Comptes Rendus de la Société de Biologie, vol. lxxiv., No. 17, 1913. 4. Swift: Studies from the Rockefeller Institute, vol. xvii., 1913. 5. Nierenstein and A. Breinl: Annals of Tropical Medicine and Parasitology, vol. iii., No. 3, November, 1909. 6. Campbell: Treatment of Syphilis of the Nervous System by Intrathecal Injections, Brit. Med. Jour., March 14th, 1914. 7. McIntosh: Brain, July, 1913.

THE OCCURRENCE OF ASCITES OF A NON-TUBERCULOUS ORIGIN IN CHRONIC RECURRENT DIARRHŒA IN CHILDHOOD.

BY F. J. POYNTON, M.D. LOND., F.R.C.P. LOND.,
SENIOR PHYSICIAN TO OUT-PATIENTS, UNIVERSITY COLLEGE HOSPITAL, AND HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET;
AND
HUGH PATERSON, M.D. EDIN.,
MEDICAL REGISTRAR AND PATHOLOGIST, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

FROM time to time cases of intractable recurrent diarrhœa are met with in childhood, which though not tuberculous in nature may nevertheless develop ascites. In a recent paper Poynton, Armstrong, and Nabarro,[1] in the second case they record and again in the fifth, note such an occurrence, but in neither instance was the event fatal. The combination of obstinate diarrhœa with profound wasting and ascites in early childhood is one so intimately associated with abdominal tuberculosis that this fatal case, giving *proof* of its existence in a non-tuberculous condition, appears to us worth recording, not only because we think it is a fact not very generally recognised, but because it is a small addition to the literature of a condition of very great difficulty and much importance.

In general terms this class of case shows the following characters. Following not infrequently an acute infantile gastro-enteritis, the case develops an obstinate recurrent diarrhœa, varied sometimes by intervals of meteorism and constipation. There is in bad cases profound infantilism, and there may be general anasarca, tetany, cœliac symptoms, and even arthritic changes. The dieting of such children is a matter of extreme difficulty, but a considerable number after the fifth year seem to make an almost spontaneous though slow recovery. The case we record here is clearly one of this class, as the description will show.

The patient, a male aged 3½ years, the second child of healthy parents with no tuberculous history in the family, was admitted for "wasting" into the Hospital for Sick Children, Great Ormond-street, on Dec. 19th, 1913. He had been a healthy boy with a good digestion until he was a year old, when he had an attack of "infantile cholera." Since that time he had never been well, but had gradually drifted into the state of marasmus for which he was admitted to the hospital. The illness had shown the usual features. Any attempts at pressing forward the diet resulted in breakdown with vomiting and diarrhœa. His weight on admission was 21½ lb., and though there were records of a gain of 1½ lb. in a week the usual history had been that of a stationary weight or a slight loss. There was a greedy desire for water, and when the attacks came on vomiting and the passage of large, white, undigested, offensive stools. When the motions improved the child would make a change for the better, but only to fall back again as quickly at the next relapse. At times there was considerable abdominal pain. All kinds of devices had been tried in dietary, but none had suited. His appearance was very characteristic in its waxy pallor, but apart from the marasmus he did not

[1] Proceedings of the Royal Society of Medicine, 1913, vol. vii., pp. 10–32, A Contribution to the Study of a Group of Cases of Chronic Recurrent Diarrhœa in Childhood.

appear acutely ill and the temperature was never above normal. Previously to admission there had been a general anasarca which had, however, mostly disappeared. There was nothing abnormal discovered in the heart or lungs. The abdomen was rather distended. The liver was not felt and no masses were detected. There was no discoverable ascites, and the urine was not abnormal. The first week after admission the weight rose a pound, and then followed an attack of diarrhœa. The motions were clay-coloured and unformed, but later became greenish and contained mucus.

Dr. D. N. Nabarro reported upon the motions as follows: "Reaction acid. Smears showed a preponderance of Gram-positive bacilli. Smell 'butyric,' not fæcal. Culture showed only typical bacillus coli. Agglutination tests were made with typhoid, paratyphoid B and four strains of dysentery bacilli (1–25, 1–50, 1–100). The results were all negative except a partial reaction (1–25) with one strain of dysentery."

After the attack of diarrhœa the weight fell to 19 lb., and then there was once more some improvement, but in the middle of January vomiting commenced and the motions now became dark. On the 16th anasarca began to show again, and fluid was detected in the abdomen. In spite of every care the child died from heart failure on the 25th, the weight having risen to 23 lb. At no time was there a rise of temperature.

The essential features of the necropsy were: (1) A general infiltration of the tissues with œdema fluid; (2) the entire absence of any evidence of tuberculosis; (3) the presence of a pint of straw-coloured fluid in the abdomen and about 5 oz. in each pleural cavity; (4) general œdema of the walls of the gastro-intestinal tract, the mucous membrane of which was thinned in some places, but was for the great part œdematous and thickened and showed no ulceration; (5) definite enlargement of the mesenteric glands, which were translucent on section, but showed no signs of tuberculous change; (6) extreme fatty change in the liver; and (7) no apparent change in the pancreas.

The brain and spinal cord were not examined and the other organs showed no obvious changes. Bacteriological investigation after death failed to discover the dysentery bacillus. Microscopical examination of the various organs showed, on the whole, remarkably few points of interest. The liver showed definite fatty changes of high degree and particularly obvious at the periphery of the lobules. The pancreas showed small circumscribed areas of leucocytic infiltration between the acini, but there was no fibrous change. The gastro-intestinal tract showed œdema of the walls, and there were circumscribed areas of leucocytic infiltration in the submucosa and mucosa of the stomach and colon. In the colon there was also much destruction of the glandular epithelium, and in the ileum the submucosa was in places much thinner than normal. The mesenteric glands appeared normal. The cardiac muscle showed no obvious changes. The renal epithelium appeared normal. The Malpighian corpuscles of the spleen were poorly marked.

Poynton, Armstrong, and Nabarro in their paper describe a fatal case of this kind, but differing in the absence of ascites. From that case Nabarro isolated after death the bacillus of dysentery, but on this occasion failed to do so. There were, however, some decided points of resemblance in the results of the necropsy in these two cases, notably the absence of ulceration in the intestinal tract and the presence of extreme fatty change in the liver. Further, foci of infiltration with leucocytes in the gastro-intestinal tract were described in both, and above all it was apparent that the condition was not one of gastritis, enteritis, or colitis, but a widespread affection of the digestive apparatus apparently in its nature infective.

From whatever point of view these cases are studied they present features of intense interest. The etiology is obscure, and we have still to learn whether it is a clinical group only or a group dependent upon some special infection. The treatment is extraordinarily difficult and demands the most trying of all tests both for doctor and parents, the patience, one might almost term obstinacy, to struggle on month after month with almost a starvation diet. No fact is more certain in the present state of our knowledge than that any attempt to hasten progress is to court disaster. The more experience one has of these cases the more is any phenomenal gain in weight rather a warning of impending disaster than a sign of any real progress. The relation of the cœliac symptoms to the actual disease is yet another point of interest, and, lastly, three is the question of the diagnosis.

It is abdominal tuberculosis that provides the great difficulty. These cases waste; they have abdominal pain, recurrent diarrhœa and constipation, distension, and sometimes fever. They may pass mucus or even a little blood, and they may have ascites; nevertheless, the necropsy shows an entire absence of any tuberculous process in the body.

As the writers in the paper already alluded to pointed out, these cases in their recurrent attacks may reach a degree of illness from which, if they were tuberculous in nature, it would seem impossible to recover, and certainly to recover on more than one occasion. There is no evidence of tubercle elsewhere in the body and the various tuberculous reactions have been negative. Examination of the fæces will show the absence of tubercle bacilli. The temperature is not so constantly raised and may be subnormal. There are no masses of tuberculous deposit in the abdomen, and our experience has been that the ascites when it occurs is part of a general anasarca, which in its sudden onset is a remarkable feature of these cases. Again, the previous history of an infantile "cholera" is suggestively frequent, and the difficulty in the dieting appears to us greater than in most cases of abdominal tuberculosis. The occurrence of tetany and laryngismus and of rheumatic pains in the limbs are suggestive of the nature of these cases, as also is the infantilism, with a peculiar pallor and remarkable softness of the general musculature.

The practical physician will, however, in analysing these distinctions, recognise that they are relative rather than absolute indications, and if further proof were needed it might be stated that there are probably few who have had experience of such cases and have not for months, perhaps for years, thought some of them were probably tuberculous in nature and have been led to change their diagnosis by an unexpected, slow, but complete recovery.

It is a curious fact that the periods of constipation with great meteorism may lead to the suspicion that we are dealing with an entirely different condition—namely, Hirschsprung's disease; but this

may be the case, and it is quite possible that, as Poynton, Armstrong, and Nabarro record, a condition almost indistinguishable may result.

The occurrence of this ascites is an interesting example of a clinical difficulty in which the combination of physical signs in two widely different processes creates a striking likeness in the results that are produced. The ascites in abdominal tuberculosis is clearly the result of the local irritation of the peritoneum by numberless foci of miliary tubercle; the ascites in these cases of chronic diarrhœa is a transudate which occurs also in all loose tissues, and in very severe cases in probably all the soft tissues of the body. It is an ascites comparable to that in renal disease, and it is possible, we suppose, that some change in the renal tissues may actually occur, although it is not obvious to ordinary methods of examination. This œdema of the loose tissues is a very suggestive occurrence, and when, as is usually the case, it precedes the ascites is strong evidence that the latter is not tuberculous in origin. In this particular case we think it greatly assisted the diagnosis of the non-tuberculous nature of the illness.

In conclusion, we would repeat that the essential point in this contribution is the actual proof of a definite ascites in this condition.

AN OPERATION FOR UNDESCENDED TESTICLE.

BY RALPH THOMPSON, CH.M. VICT., F.R.C.S. ENG.,
SURGEON IN CHARGE OF THE GENITO-URINARY DEPARTMENT, GUY'S HOSPITAL; SURGEON TO THE VICTORIA HOSPITAL FOR CHILDREN.

WHEN an operation designed to bring down an undescended testicle is undertaken two main difficulties present themselves. One is the lengthening or the partial removal of the structures, which connect the testicle to the body. I do not propose to deal with this difficulty in the present paper. The second difficulty is the retention of the testicle in the scrotum. It is with this difficulty that this paper is concerned.

I have, in two cases of undescended testicle which have occurred at Guy's and the Victoria Hospitals, adopted the following plan for retaining the testicle in the scrotum. The usual incision is made for the exposure of the external opening of the inguinal canal, with two exceptions—it is longer and it is curved. The incision commences just internal to the anterior superior spine, and proceeds in a sinuous manner into the scrotum. It may be divided, for the purposes of description, into three parts of equal length. The first part lies half an inch above, and parallel with, the outer half of Poupart's ligament. (Fig. 1, left side.) The second part is curved with its convexity directed downwards and outwards. It begins just above the middle of Poupart's ligament and terminates near the pubic spine. The third part curves downwards into the scrotum, and is of equal length to each of the two other parts of the incision. Its convexity is directed upwards and inwards. The external ring is exposed and any hernia treated in the usual way. The vas is isolated with its accompanying artery and vein. The cremasteric plexus of blood-vessels and lymphatics is removed between ligatures. A finger is introduced into the cavity of the scrotum and the testicle is brought down and placed in the scrotum, where it is retained by an assistant. The extremities of the middle part of the incision are then united by a curved incision, whose convexity is directed upwards and inwards (Fig. 1, right side); and an oval flap of skin and subcutaneous tissues, extending down to the external oblique muscle, is dissected and isolated. This oval flap is then transferred to

FIG. 1.

Left side, incision indicated by dotted line. Right side shows formation of oval flap.

FIG. 2.

To show incision, sutured edges, and position of inguinal flap when sewn up.

the scrotal part of the incision and sutured to both sides of this part, so that its lower apex lies in the lowest part of the scrotal portion of the incision. The rest of the wound is then sewn up in the usual way. When the suturing is complete the wound is as shown in Fig. 2.

By this means the scrotum is appreciably enlarged and, as it were, stiffened by a portion of tissue which contains no "dartos" muscle, and therefore remains uncontracted. The simplicity of the operation and its successful results in two cases have tempted me to place it on record.

Wimpole-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases.—Auricular Flutter in Acute Rheumatic Carditis.

A MEETING of this section was held on April 24th, Dr. LEONARD G. GUTHRIE, the President, being in the chair.

Dr. H. MORLEY FLETCHER showed a case of Amyotonia Congenita.

Mr. A. E. MORTIMER WOOLF exhibited a case of Arthritis of the Left Shoulder in a boy aged 8. Three years before he had been under treatment for fibroid lung of tuberculous origin. The present trouble started with pain in the joint followed by limitation of movement and muscular wasting. An X ray examination showed caries of the head of the humerus.

The PRESIDENT showed a case of Pneumonia followed by Encephalitis.

Mr. PHILIP TURNER showed: 1. A case of Cubitus Varus after fracture of the lower end of the humerus which was treated by osteotomy of the humerus above the condyles. The operation was successful in removing the deformity, and there was also a great improvement in the function of the arm. 2. A case of Syphilitic Cirrhosis of the Liver with Ascites, which had been treated by a Talma-Morison operation. Though the operation was followed by a considerable collection of fluid in the peritoneal cavity calling for tapping, this had not re-collected and the abdomen was now considerably smaller. The general condition had also improved.

Dr. E. A. COCKAYNE exhibited a case of Mongolian Blue Spots. The patient was aged 11 months and the parents were both Jews. The spots when first seen at the age of 9 weeks were of a clear slaty-blue colour unaltered by pressure.

Dr. R. A. CHISOLM showed a case of Enlargement of the

Spleen which was considered to be an example of splenic anæmia of infancy. It was proposed to treat it by salvarsan, and if this was not followed by improvement splenectomy would be considered.

Mr. A. H. TODD showed a case of Complete Double Hare-lip without any Cleft of the Palate. Congenital bilateral mucous fosse were also present in the lower lip.

Dr. H. D. ROLLESTON and Dr. J. N. MACBEAN ROSS exhibited a case of Lymphatic Leukæmia which had been successfully treated with benzol.

Dr. G. A. SUTHERLAND read a paper on Auricular Flutter in Acute Rheumatic Carditis. He pointed out that while the importance of the endocardial, pericardial, and myocardial changes in rheumatic infection was generally recognised, there was another factor to be considered in some cases—viz., the development of an abnormal rhythm of the heart. The onset of an abnormal rhythm did not necessarily mean that the heart was irregular in its action, as tested by the ordinary methods. As a matter of fact, one of the striking features of acute carditis was the regularity of the action, however rapid the rate, as tested by the pulse or the apex beat. These beats were dependent on the action of the ventricles, and in the majority of cases an abnormal rhythm was developed in the auricles. He had recently met with two cases in which there was apparently an abnormal rhythm of the auricles, and which was recognised only on taking a venous tracing in the neck. Tracings were shown which seemed to point to a condition of auricular flutter. He thought that a heart already weakened by disease might find itself hopelessly crippled by the supervention of some such rhythm, and the signs of cardiac failure might be rapidly induced or gravely aggravated. While an exact diagnosis of auricular flutter could be made only by means of an electric cardiograph, he thought the polygraph gave very suggestive tracings. As practical points for further investigation he suggested that attention be paid to the following possible indications of this form of disordered rhythm: (1) Attacks of cardiac asthma (great dyspnœa) occurring suddenly and without accompanying variations in the cardiac condition; (2) a triple or galloping or cantering rhythm heard on auscultation; (3) pericarditis without effusion and with great respiratory distress; and (4) the presence of the pulsus alternans.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Election of Officers.—Exhibition of Specimens.—The Etiology of Eclampsia.

THE annual meeting of this section was held on May 7th, Dr. W. S. A. GRIFFITH, the President, being in the chair. The following officers and members of Council were elected for 1914-15: President: Dr. W. S. A. Griffith. Past-Presidents: Sir Francis H. Champneys, Bart., Sir J. Halliday Croom, Mr. Alban Doran, Dr. Amand Routh, Sir William J. Smyly, Mr. W. D. Spanton, and Dr. Herbert R. Spencer. Vice-Presidents: Dr. W. Wm. Chipman, Dr. T. Watts Eden, Dr. F. W. N. Haultain, Dr. M. Handfield-Jones, Dr. Arnold W. W. Lea, Dr. H. Macnaughton-Jones, Dr. G. H. Drummond Robinson, Dr. Heywood Smith, and Dr. Walter W. H. Tate. Honorary Secretaries: Dr. C. Hubert Roberts and Dr. Cuthbert Lockyer. Other members of Council: Dr. G. F. Blacker, Mr. J. S. Fairbairn, Dr. A. E. Giles, Mr. William Gilliatt, Mr. Bryden Glendining, Dr. T. B. Grimsdale, Dr. J. P. Hedley, Dr. J. B. Hellier, Dr. Eardley Holland, Dr. J. M. Munro Kerr, Dr. F. J. McCann, Dr. R. G. McKerron, Mr. J. D. Malcolm, Mr. G. F. Darwall Smith, Dr. Clifford White, Mr. H. Beckwith Whitehouse, Dr. J. Abernethy Willett, and Dr. Thomas Wilson. Representative on Library Committee: Dr. H. Russell Andrews. Representative on Editorial Committee: Dr. John Phillips.

Dr. FLORENCE WILLEY showed: 1. Endothelioma of Uterus removed from a single woman aged 45. For three years the patient had suffered with hæmorrhage, and for six months from recurring abdominal pain. Subtotal hysterectomy was performed, and on opening the enlarged uterus, which measured 4 by 4 inches, a fluctuating globular tumour was found bulging into the cavity, and on incision clear fluid escaped. The rest of the tumour appeared to be filled with soft lobular masses of the consistency of fat. The tumour measured 3 inches in diameter, and was only partially encapsuled; part of the growth invaded uterine muscle tissue. On section the tumour was an endothelioma. The specimen was referred to the Pathology Committee, who reported it as a "perithelioma." 2. Specimen illustrating Partial Development of a Placenta on the Decidua Capsularis and Implantation on a Submucous Fibromyoma.

Dr. C. E. PURSLOW (Birmingham) showed: 1. Uterus with Red Degeneration and Early Pregnancy removed from a married woman whose period was ten days overdue, during which time she suffered with violent abdominal pain. The tumour, which showed well-marked red degeneration, was on the anterior wall. The uterine cavity was filled with blood clot and contained an amniotic sac having a diameter of half an inch. 2. Uterus with Multiple Fibroids and Placenta Prævia, removed by hysterectomy.

Dr. J. P. HEDLEY showed a specimen of 19 pieces of Fœtal Bones which he had removed from the uterus of a woman, aged 37, three years after a miscarriage at about the fourth month. At the time of operation the finger in the uterus found a thick mass an inch in diameter which bristled with the spicules of bone now shown. Dr. Hedley believed the pregnancy to be intra-uterine and not interstitial.—Remarks were made on this specimen by the PRESIDENT, Dr. PURSLOW, Dr. G. F. BLACKER, and Dr. R. D. MAXWELL.

Dr. E. ATHOLE ROSS (for Mr. JOSEPH E. ADAMS) showed a specimen of Carcinoma of the Uterus in a child, aged 2½, who for three weeks before admission had a blood-stained discharge, and passed clots. Examination of the abdomen showed a tumour, partly cystic, in the hypogastrium between the bladder and the rectum. The urine contained no blood. Abdominal section was performed on June 18th, 1913, and a mass of soft growth the size of a golf ball was found in the recto-vesical space, obscuring the position of the uterus. It was incised, and a hæmorrhagic growth of a malignant nature discovered. It could not be removed. The child died two months after the operation. At the post-mortem examination a large mass of growth occupied the pelvic cavity, arising apparently from the uterus. Careful examination of the removed organs showed the ovaries and tubes intact, and that both body and cervix of the uterus were largely replaced by breaking-down growth which had extended into Douglas's pouch and grown into the cavity of the vagina and bladder. The growth appeared to be a "papilliferous or villous carcinoma arising in the glandular epithelium of the body of the uterus" (Dr. Ross). There was no evidence of tubercle.—Remarks were made by the PRESIDENT, and the specimen was referred to the Pathology Committee.

Dr. HERBERT WILLIAMSON showed a specimen of Intussusception through a Gastro-enterostomy Wound occurring during labour in a patient, aged 28, in the thirty-fourth week of her second pregnancy. In 1908 and 1909 she had symptoms of gastric ulcer and underwent two operations, one being a gastro-enterostomy at the Great Northern Hospital. She made a good recovery, and in 1912 was delivered of a healthy child after a normal pregnancy. Her second pregnancy commenced in July, 1913. There was vomiting, which became more severe on Dec. 24th, 1913. It ceased, but recurred on Jan. 26th, 1914, and she was admitted to St. Bartholomew's Hospital on Feb. 24th last. The urine contained a trace of albumin and a considerable quantity of acetone and diacetic acid. On Feb. 25th she expelled a stillborn child. Two hours later the stomach was greatly distended and a loud succussion splash was evident. The patient looked very ill. The stomach was washed out by a soft tube, and gas and a pint of dark blood-stained fluid drawn off. Acute dilatation of the stomach was suspected, but she became rapidly worse. The temperature was 101° F., and the pulse 140, with cyanosis and collapse. No surgical interference was thought advisable on account of the general condition. She died 36 hours later. On post-mortem examination the stomach contained gas, dark fluid, decomposing blood clot, and a large tract of intussuscepted intestine which appeared through the wound. The bowel mass was 15 inches in length and was gangrenous, and consisted of the upper portion of the jejunum.

Mr. CLIFFORD WHITE showed a specimen of Volvulus of the Cæcum occurring in connexion with labour. The patient was aged 26 years and expected her second child in May, 1914. Four years ago an appendix abscess was drained in the Hastings Hospital. The resulting scar was weak and prominent. At the seventh month of the present pregnancy she was very constipated, for which she took castor oil. On

Feb. 24th she consulted a medical man for abdominal pain. On March 1st a dead seven months child was born before the midwife could reach the house. Her general condition was at first good, but later, when the district resident medical officer of Queen Charlotte's Hospital visited her, the pulse was 140. Enemata failed to get the bowels to act. When Dr. Clifford White saw her the abdomen was distended and tense, and there was a large hernia of the appendectomy scar which could not be reduced. In the right lumbar region an indefinite mass could also be felt. The patient was removed to the Samaritan Free Hospital for Women, and the abdomen opened in the line of the old scar. The sac contained offensive fluid and the cæcum, which was gangrenous. There was a volvulus of the cæcum and about 3 inches of the ascending colon. The cæcum, a few inches of colon, and 10 inches of the ileum were removed, and Paul's tubes tied in. Death occurred on March 6th. No necropsy could be obtained. The interest of the case was as to when the volvulus occurred and the difficulty in diagnosing the cause of collapse occurring in a patient soon after labour.

Dr. JAMES YOUNG (Edinburgh) read a paper on the Etiology of Eclampsia and the Albuminuria of Pregnancy, and discussed their relation to accidental hæmorrhage. Placental disease was especially apt to be found in these toxæmias. That this relationship was not a necessary one, however, was usually supposed to be shown by the fact that in acute cases the placenta often looked healthy. But he showed that whilst this was so, if some days had elapsed between the acute attack and the birth of the placenta there was always a massive recent necrosis. This discovery indicated that there was a necessary relationship, and that it was with the earliest, often unrecognisable, stages of the placental death that a toxæmia was associated. Dr. Young referred to the fact that it was not difficult to show that the chorionic elements depended directly and immediately upon the maternal blood for their nourishment, and so long as this was not implicated, could live where there was no fœtal circulation. The causes of such placental disease were merely an exaggeration of changes normally present in lesser degree. It could be proved that the implication of the circulation, which ended in placental death, was not due to a toxæmic state. It could, moreover, be proved that the cause of accidental hæmorrhage was something apart from a toxæmia, for 50 per cent. of such cases were unassociated with any sign of poisoning. The inevitable conclusion from these researches was that the placental disease was the cause of the toxæmia. If the placenta was completely detached or was delivered early there would be no chance for the development of a toxæmia. Dr. Young supplied experimental proof of the conclusion that it was the early autolytic products of a dying patch of placenta that caused the toxæmia. By autolysing healthy placenta for short periods he had isolated a material that, when injected subcutaneously into lower animals, reproduced the three cardinal features of eclampsia—(1) severe convulsions, (2) focal necrosis in the liver, especially in the peripheral zone of the lobules, and (3) degenerative changes in the kidney, especially in the region of the convoluted tubules. The convulsions, it was interesting to note, came on within 30 seconds. He had controlled his experiments by the injection of extracts of other organs which gave negative results.—The paper was discussed by the PRESIDENT, Dr. WILLIAMSON, Dr. MACMASTER, Dr. H. OLIPHANT NICHOLSON, and Dr. EDEN.—Dr. YOUNG replied.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Early Nervous and Mental Cases.

THE quarterly meeting of this association was held at the Medical Society's rooms, London, on May 19th, under the presidency of Dr. JAMES CHAMBERS.

Dr. WOLSELEY LEWIS proposed—

That inasmuch as Part 7 of the London County Council (General Powers) Bill deprives the visiting asylums committee of its special duties and responsibilities as a Statutory Committee under the Lunacy Act, and is inconsistent with the principles previously adopted by the Medico-Psychological Association, it is resolved that representations in opposition to such proposals in the above-mentioned Bill be made to the Home Secretary.

This was carried.

The SECRETARY (Dr. M. Abdy Collins) read a letter from the Board of Control intimating that the Treasury had placed at the disposal of the Board £1500 for the year 1914–15 to encourage scientific research into the causes and treatment of mental disease and mental defect.

On the motion of Dr. J. G. SOUTAR, seconded by Dr. R. G. ROWS, the meeting passed a series of resolutions thanking the Board of Control for their efforts in the promotion of research connected with the specialty, and offering to nominate members of the association who would be available for consultation in furtherance of the manner of disposing of the grant to the best advantage, and suggesting that grants be given to (*a*) individual workers, and (*b*) universities and public bodies acting together or separately.

Dr. HELEN BOYLE, of the Lady Chichester Mental Hospital, read a paper entitled "Some Observations on Early Nervous and Mental Cases with Suggestions as to Possible Improvement in our Methods of Dealing with Them." It was a plea for unification of teaching treatment with regard to nervous and mental diseases. She said that early nervous and mental cases were inseparable logically in the abstract, and still less separable in practice. Dr. F. W. Mott had declared that locomotor ataxy was pathologically the same disease as general paralysis of the insane, and she suggested that the discovery of this fact would not have been postponed until now but for locomotor ataxy having been labelled nervous and general paralysis of the insane mental, and the cases of that disease packed off to an asylum. She spoke of her experience of 19 years, which was largely concerned with nervous and mental cases, as asylum officer, and later in connexion with the Lady Chichester Hospital for early mental and nervous cases among the poor. During that experience she had often known non-recovery in recoverable cases, and was much impressed by the lack of unity of conception or treatment. The differences and reasons fell under two heads: (1) those relating to the general treatment and opinions held on mental and neurotic cases as a whole; and (2) reasons connected with individual and special treatment of definite groups of patients. The cases were treated by the general practitioner, who in most instances had had no special training in neurology or insanity; or they might fall under the care of psychotherapeutists or physicians or surgeons or professors of various faiths, such as Christian Scientists. The last person to see an early mental case was usually the specialist in that class of disease, the alienist. Dr. Boyle deprecated the separation in teaching of neurology from psychiatry, and the absence of wards for early nervous and mental cases, and consequent lack of teaching regarding those cases for students and nurses in the great general hospitals which possessed medical schools. All specialists on the nervous system should be conversant with brain conditions as well as nervous. There were many cases of mental disease wrongly labelled nervous and sent to undergo Weir-Mitchell treatment, under which treatment the unoccupied mind, with nothing to distract it, fed upon itself. Moreover, the separation of neurology from psychiatry confused the public mind. She repeated a parodox she often used, that insanity began before the person was insane; defective mental health often existed long before the person became certifiable. Some acute cases cleared up under appropriate treatment, and were no more fit for an asylum than were the temporary insanities of typhoid fever or pneumonia. The cases which it was really important for students to see were not those of delirium tremens, but the early uncertifiable cases, the early obsessional and early melancholic, the hypochondriacal; these cases could never be taught by books. No practitioner could escape the early nervous and mental cases, and the welding of the two specialties would do away with much of the fear of detention on the part of patients suspecting a mental breakdown. She referred with gratitude in this connexion to the generosity of Dr. Maudsley in providing an institution for the treatment of London's poor mental patients.

Sir GEORGE H. SAVAGE thought there was a good deal of misapprehension in the minds of many people on the subject of the paper, for many declared that if only certain patients had been seen earlier they would never have been sent to an asylum. He emphasised the importance of a general knowledge of medicine in all who practised the specialty. He fully agreed that the psychologist and the neurologist should work together. There was a public prejudice against lunacy and against the medical men who specialised in it, and they had the notion that the one idea in the minds of the latter

was to send people to asylums, forgetful of the numbers who were prevented from entering asylums owing to appropriate early treatment.

Dr. PERCY SMITH pointed out the administrative difficulty concerning the provision of beds for early mental cases in general hospitals. At St. Thomas's and other general hospitals there was an out-patient department for mental cases, and he believed it was of great benefit. But there were some cases which from the first required asylum treatment.

Dr. JAMES STEWART expressed the hope that the public would be brought to see the difficulties which were associated with this subject, and supported the authoress's plea for a closer association between the neurologist and the alienist.

Dr. BEDFORD PIERCE hesitated to speak on this subject because we knew so little as to the causes of these early cases of mental disorder and so little as to what was best to be done for them. He recently, for the purposes of a debate, inquired the views of a number of physicians and busy practitioners, and the inquiry revealed a remarkable difference of opinion.

Dr. NOEL SERGEANT deprecated importing too much sentiment into the matter and the talk of the "shame" of certification, especially as certification was a safeguard both for the general public and for the patient himself, and so giving him the best chance for recovery.

Dr. T. B. HYSLOP said that in border-line cases there had always been a difficulty, and probably there always would be. And there was the risk of illegality in institutions which were not under the regulations of the Lunacy Act. He also discouraged any tendency of one specialty, such as psychiatry, throwing stones at another, neurology.

Dr. H. F. HAYES NEWINGTON said that a large section of the public thought that insanity was cured by scientific observations and the use of sera, but the prime and most important step towards cure was to take the patient out of the surroundings in which the defect occurred, and, indeed, there seemed reason to believe that this one step was responsible for some patients getting well. There were many difficulties in connexion with placing patients under suitable care, and these the bulk of the public had no conception of.

Dr. H. CORNER, speaking of an experience of 17 years, during part of which time he had had care of a home, said he fully recognised the difficulties of the position. But there was need for early treatment of cases on lines which the existing law did not provide for. He detailed suggestions which he made to the authorities in connexion with two attempts at legislative amendment.

Dr. C. F. FOTHERGILL spoke of the importance of taking harassed and run-down people away from their mischievous surroundings as the first step towards cure, and thought they should be, at least in the first instance, sent to hospital instead of to an asylum. Moreover, the fear of certification was calculated to drive a threatening case over the border-line into actual insanity. This was especially the case of the poor, who could not afford residence in some of the special homes set apart for this work.

Mr. C. T. STREET considered that certification was the crux of the whole matter, but thought there was much nonsense talked about certification. It was difficult to give many cases proper treatment without certification.

Dr. LEWIS said there seemed to be a strong opinion in favour of some alteration of the law with regard to certification of patients, and it was true that some patients sent to asylums would have been better treated outside those institutions. For this purpose, however, there should be a system of notification as opposed to certification, though perhaps there would be a difficulty in that from the point of view of the public. The medical students' curriculum was already so crowded that he did not think it wise to attempt to include definite teaching of insanity in it, especially as that subject could not be learnt from books.

Dr. WILLIAM R. DAWSON agreed with what had been said as to the exaggerated ideas which prevailed concerning effects of certification upon patients. His experience was that it had no adverse effect upon them. The relatives were much more upset by certification than were the patients themselves. He referred also to the unsuitability of ordinary hospital nurses for mental cases. With regard to the unification of the specialties of neurology and psychiatry it was much easier for the psychiatrist to become a neurologist than *vice versâ*, for psychiatry could not be learnt from books; there was only one road to knowledge of mental diseases and that was active residence in an asylum and being constantly with mental cases.

Dr. MAURICE CRAIG commented on the regrettable lack of hospital accommodation for acute mental cases in the poorer classes, the need for which was manifested by the great number of applications for admission to the Lady Chichester Hospital which Dr. Boyle was in charge of. On this question of certification a great deal was made of the "liberty of the subject," but the lawyers were really greater opponents of that in this matter than the alienists.

Dr. J. FRANCIS DIXON agreed with Dr. Craig's remarks, and thought some provision should be made for asylums taking in voluntary boarders.

Mr. H. E. HAYNES thought the present English law bore hardly upon mental patients.

The PRESIDENT thought that if so-called early mental cases could be treated in general hospitals far-reaching benefits would accrue, and perhaps clinical teachers themselves would adopt a different line if that were done.

Dr. BOYLE replied, pointing out that the class of case she was dealing with in the paper was not the certifiable ones at all, for they were already excellently treated. Her plea was on behalf of the early mental and nervous case which, from lack of proper provision, often became incurable.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.

A MEETING of this society was held in the Royal Infirmary on May 20th, Dr. JOHN PLAYFAIR, the President, being in the chair.

Dr. DAWSON TURNER showed a female patient, aged 37, who had been cured of a recurrent carcinoma over the left sterno-clavicular joint. Her right breast had been removed for a scirrhus tumour in August, 1912. Recurrence took place in the following October. On admission on Feb. 3rd, 1914, there was a large tumour which measured 3 inches by 2½ inches and projected forwards 2½ inches from the sternum. She suffered considerable pain. Treatment consisted in the internal and external application of radium and the total dose amounted to 5510 mg. hours, with the result that pain was relieved and the growth gradually disappeared.

Mr. JOHN FRASER exhibited a boy, aged 5 years, who had developed tuberculous disease of the left middle ear and mastoid, with secondary involvement of the facial nerve and resulting facial paralysis. Operative treatment of the ear condition failed to relieve the paralysis, and at the end of a year there was no sign of recovery. The cervical glands became tuberculous, and 18 months ago they were removed. During the dissection the peripheral facial nerve was anastomosed to the central spinal accessory; a portion of the external jugular vein was excised and used to encircle the line of suture. Now at the end of 18 months muscular power was returning to the face.

Professor ALEXIS THOMSON showed: 1. A man, aged 32, who had suffered from extradural suppuration which followed an injury to his head. Pott's puffy tumour was present with signs of pressure on the motor area causing hemiplegia on the opposite side. The bone was extensively removed and autogenous staphylococcus vaccine administered, with the result that the man had recovered. 2. A boy, aged 11 years, after Resection of the Humerus for Sarcoma. The patient had been shown to the society in 1910, after an operation in September, 1909, in which the middle portion of the humerus was resected for a spindle-celled sarcoma of the periosteum. The disease had returned and the lower half of the humerus was removed in July, 1910, and again a portion of his fibula was inserted in its place. The disease had not returned and the humerus had grown in length.

Dr. ROBERT A. FLEMING showed: 1. A male, aged 18 years, suffering from a remarkably Dilated and Hypertrophied Heart with most marked præcordial pulsation. The present illness was believed to have started when he was 7 years old, but there was no definite history of rheumatic fever. The pulse was 116 and of typical water-hammer

character. He had aortic stenosis with thrill and incompetence, and also mitral stenosis and incompetence. 2. A female, aged 22 years, suffering from Glycosuria and presenting some remarkable features. The sugar in the urine had varied from about 400 to 80 grains in the day. She was in good health but became very tired after slight exertion. Dr. W. Cramer contributed the following note: "The urine gave the typical glucosazone crystals, fermented, rotated polarised light to the right, and gave a positive Nylander reaction, but when tested with Fehling's solution gave a scarlet-red solution which darkened rapidly and turned black, depositing a black precipitate. This abnormal reduction was due to production of a colloidal solution of cuprous oxide (red) which was further reduced to colloidal copper (black). The reaction was due to the presence of glucose in a relatively concentrated urine which contained a high percentage of creatine and creatinine. If the urine was diluted with water, the ordinary typical Fehling reaction was obtained. The occurrence of the reaction indicated a glycosuria which was not associated with a polyuria."

Mr. DAVID WALLACE showed: 1. A case of Carcinoma of the Hepatic Flexure. The patient, a man aged 55, was seized with sudden pain in the right iliac fossa in April, 1913. Previously he had suffered much from constipation, associated with much pain in the bowels after taking purgative medicine. These symptoms had continued for 12 months. A mass was felt in the right lumbar region, but there was no visible peristalsis. The operation was done on May 14th, 1913, and a carcinoma of the hepatic flexure with secondary nodules in the liver was found. The ileum was laterally joined to the transverse colon. The patient made a good recovery, but was at present losing health. Mr. Wallace doubted whether there was any real advantage in short-circuiting in such cases, and stated that even an exploratory incision often hastened death. 2. Case of Renopelvic Calculus from a male aged 28 years. The usual pain in the right lumbar region with blood in the urine was present. X rays showed the presence of stone in the pelvis of the kidney. On Feb. 3rd, 1914, the calculus was removed through the pelvis; the incision in the pelvis was closed and the line of incision strengthened with fascia. No escape of urine occurred. The calculus was similar to three others in having large acicular crystals on the surface. 3. A Renal Calculus in the substance of the kidney in a woman. The symptoms were anomalous, but the X rays gave a definite shadow and the percussion sign was present.

Mr. D. P. D. WILKIE showed a man in whom he had resected the posterior nerve roots for relief of the gastric crises of tabes. The symptoms commenced four years ago and nine injections of salvarsan were given, but without any benefit. The pains were so severe that the patient was laid low for two days every week with severe pain and vomiting. The other manifestations of tabes were relatively slight. Four weeks ago the operation was performed, the spines and laminæ of the third to the eighth dorsal vertebræ were removed, and the seven posterior nerve roots (fifth to eleventh) on each side were resected. Since the operation he had had no pain or vomiting (except one slight attack four days previously). There was no sensation in the skin and tissues of the back. There had been delay in closing of the wound by reason of the removal of the stitches too soon, it having been forgotten that the trophic influence had also been destroyed by the operation. Mr. Wilkie thought that several cases operated on in this way had not shown improvement on account of too few nerve roots having been removed.

Dr. D. CHALMERS WATSON exhibited a young man, aged 20 years, suffering from Chronic Indigestion. The affection had commenced a year ago with abdominal pain, nausea, flatulence, constipation, loss of weight (nearly 1 st.), and general lack of vigour, associated with marked ileal stasis and secondary gastric and colon stasis, the primary factor being, in all probability, due to adhesions in the ileo-cæcal region. There were three areas of definite tenderness on pressure: (1) in the right iliac region; (2) to the left of the umbilicus; and (3) over the right rectus muscle. The stomach was atonic and displaced downwards.

Dr. W. T. RITCHIE and Mr. J. M. GRAHAM showed a case of Pernicious Anæmia in a woman aged 51 years, which had been treated by the direct transfusion of blood. The patient had had two previous relapses after treatment by arsenic. The red cells amounted to 770,000 and hæmoglobin to 35 per cent. The anæmia increased in spite of arsenic. Transfusion was carried out on March 8th, 1914, the radial artery of her daughter being connected to the cephalic vein of the patient. Thereafter numerous nucleated red cells appeared, and her condition steadily improved. On May 13th the red cells numbered 2½ million and the hæmoglobin 65 per cent. The chief effect of the transfusion seemed to be a stimulation of the bone marrow.

Mr. J. W. DOWDEN demonstrated: 1. A man who showed power of locomotion in spite of the absence of the head and neck of the femur (Charcot's disease of the hip without nervous symptoms). 2. A woman, aged 50 years, showing the benefit of a bone graft from the crest of the tibia inplanted for ununited fracture of the neck of the femur with absorption.

Professor F. M. CAIRD showed: 1. A man, aged 31, who had been pitched from a bicycle against a wall; he had persisted in cycling seven miles after the accident and had the wound in the head dressed by a medical man. Two days later he went into hospital, when, on operating, a depressed fracture was found, the bone was elevated and the fragments of bone re-implanted. The patient made a good recovery. 2. A miner, aged 21 years, who, as a result of a fall of coal on his head sustained a wound and depression in the skull. The next day he was sent into hospital after the wound had been dressed by a medical practitioner. The wound furnished a growth of staphylococci. The depressed bone was elevated and the wound cleaned with 1:20 carbolic acid. The patient had made a good recovery, though there was a pulsating area on the skull over which he had to wear a shield.

Dr. CHARLES MCNEIL exhibited three children suffering from Chronic Dyspepsia to show the benefiical results of giving an emulsion of liquid paraffin. They suffered from chronic diarrhœa with wasting, recurrent bilious attacks, nocturnal enuresis, and malnutrition.

Mr. CHARLES W. CATHCART showed a man who two and a half years ago sustained a fracture of the lumbar spine which had probably caused crushing of the cauda equina and produced complete paraplegia. He had recovered his walking power, although no operation had been performed.

Dr. FRANCIS D. BOYD showed: 1. A case of Bronchiectasis to illustrate oxygen replacement and artificial pneumothorax. 2. A case of Diabetes with Acidosis to illustrate the benefit which might follow "oatmeal cure."

Mr. LEWIS BEESLY showed a girl aged 2 years. She had had tuberculous dactylitis when 9 months old, with abscess formation, and complete recovery after removal of sequestra. Five months later a painless enlargement around the left ulna developed. Tuberculous osteomyelitis in the proximal half of the diaphysis was diagnosed. Subperiosteal resection was performed on July 14th, 1913; primary union took place, and there had been no further sign of tuberculosis.

Mr. A. A. SCOT SKIRVING showed a man, aged 31 years, after very extensive operation four months ago for Squamous Epithelioma of the Left Upper Jaw. Owing to implication of the skin of the cheek no flap could be made use of. Accordingly the parts involved (including the left eye and part of the nose) were removed *en masse*, with the result that a huge open cavity was left. Though smaller than at first, the cavity was still very large. A plastic operation to restore the mouth had been done, and a further plastic operation to close the cavity was shortly to be carried out by means of a flap from the scalp or from the left upper arm. Much help had been obtained at the operation from the intratracheal method of giving the anæsthetic and from preliminary ligature of the external carotid.

EDINBURGH OBSTETRICAL SOCIETY.

Gift of a Presidential Chair.—Stillbirths Registration.

A MEETING of this society was held on May 13th, Sir J. HALLIDAY CROOM, the President, being in the chair.

The PRESIDENT intimated the gift of a Presidential Chair from Dr. H. M. Church; it is decorated with the crest and motto of the society—viz., the beautiful head of Lucina (or Juno), the goddess who presided over marriage and childbirth, with an olive branch and young olives on either side, intertwined with the motto "Floreat Lucina." The society was founded in 1840.—Dr. CHURCH was very cordially thanked for his gift and made a suitable reply.

Dr. J. W. BALLANTYNE read a paper on Stillbirths Registration at the meeting of the society in March.[1] The subject was referred to the council for consideration and report. The council recommended the following modifications of Dr. Ballantyne's conclusions:—

1. That, in view of the existing confusion in the terminology of stillbirths and allied states, an attempt to reach uniformity of definition should be made.
2. That an Ante-natal Deaths ("Still-births") Registration Act is greatly needed in this country.
3. That the definitions of dead-birth, live-birth, still-birth, and abortion should be so constructed as to be in accordance with the physiology of the time of life dealt with. The following definitions are suggested:—
   (*a*) For *dead-birth*—the complete expulsion from the maternal birth-canals of a child which, during or before birth, has lost the characters of ante-natal life (heart-beat, arterial pulsation, and movement).
   (*b*) For *live-birth*—the complete expulsion from the maternal birth-canals of a child which, whilst it loses pulsation in the cord, adds on to the other characters of ante-natal life the special sign of post-natal vitality—viz., pulmonary respiration.
   (*c*) For *still-birth*—the complete expulsion from the maternal birth-canals of a child which, whilst continuing to exhibit one or more of the signs of ante-natal life (heart-beat, arterial pulsation, movement), fails for a time to assume that of post-natal life (pulmonary respiration), and then either loses even the characters of ante-natal life, or is successfully resuscitated (transanimated), and assumes those of post-natal existence.
   (*d*) For *abortion* or miscarriage—the termination of ante-natal life (by the expulsion of the uterine contents) before the end of the sixth month. A *premature birth* is expulsion of the uterine contents after the sixth month, but before the full term, and it may be a dead-birth, a live-birth, or a still-birth.

Dr. W. LESLIE MACKENZIE (Local Government Board) said the Notification of Births Act (1907) simply spoke of notifying the birth of a child, and included every kind of birth. Dr. A. K. Chalmers, medical officer of health of Glasgow, had found it of the greatest value in one respect with regard to stillbirths, and he had supplemented it with the free use of the Wassermann reaction. In Scotland, although the Act had not been adopted under pressure to any great extent by the local authorities, yet the actual population under notification was rather more than 50 per cent.; that was, nearly 2½ millions of people were under notification. He felt that three things hung together: the Notification of Births Act, the proper regulation of midwives, and the whole question of infant mortality. The Local Government Board had practically determined that where the Notification of Births Act was not adopted to have it done by themselves. This Act, on the whole, in spite of the unfortunate exception that the medical profession were not paid for the duties required of them, had been fairly satisfactory. There was a danger of confusion in accepting Dr. Ballantyne's definition of stillbirths seeing that that term had such a deep-rooted association with a dead-born child. Personally he would risk the confusion and raise the standard of the practitioner's knowledge. A vast amount of statistics would be obtained, and even if limited would be of great value in the hands of good medical officers of health. Miss Margaret Bousfield, of the National Women's Guild, in a pamphlet laid stress on the compulsory notification of births and the urgent need of attention to stillbirths.

Dr. J. CRAUFURD DUNLOP (superintendent of the Statistical Department, Register House) said he was absolutely at one with Dr. Ballantyne up to a certain point. He quite agreed that more accurate definition was required, and interesting and important information might be got, but he disagreed as to the method of getting it. He disagreed about the use of registration for the purpose instead of notification. Vital statistics were a by-product, but were not the primary function of registration. Registration was producing a register for civil rights and records which were preserved and kept for all time. It would be of no interest to anyone 50 years hence that a father or mother had a dead baby. Registration would produce excellent statistics, but these could be got equally well by compulsory notification. One must look at it from the practical aspect. Registration was done by registrars who in Scotland were a very intelligent set of men, but they had no medical knowledge. They would not know whether a child had lived or not, or the duration of pregnancy; they could not question the mothers about their menstruation. The duties were beyond the capabilities of a registrar, and the registration of these cases did not fit in with the established system of registration in Scotland. He considered that if a child capable of re-animation died it should remain on the stillbirths register, and if it lived it should go on to the live register. The principal object of notification was statistical information in order that the medical officer of health might take action and supervise the cases. The medical officer of health should be directly notified, and it should be done in secret. The medical officer of health had the technical knowledge necessary to appreciate it. Notification would not complicate the present good system of national registration, which system primarily was to establish civil rights.

Professor H. HARVEY LITTLEJOHN said the chief function of statistics was not purely civil. The registration of vital statistics had been of the greatest importance in combating disease in various forms; nothing more valuable had been done in the cause of preventive medicine. With regard to the paper, what they wanted to know was whether these were dead-born children. He did not know whether medical men wanted an abortion to be notified. They wanted to know whether a child died from constitutional disease (syphilis) or from some accident. He did not think one could get that information. One could not make a distinction if the child died a week before or an hour before birth. The stillborn child was one who was born without giving any obvious sign of life, the heart was still beating, only the respiration was wanting, it was easily revived and came to life. What was to be gained by knowing the child was silent-born? There were dead-born children and live-born children, and he did not think any more was required.

Dr. D. BERRY HART said the object of registration was to gain information as to the health of the nation. They wanted to find out the influence of syphilis in producing premature labours and stillbirths; they wanted also to find out the influence of rickets in producing stillbirths from narrowing of the pelvis. Comparison in future years would show whether the national health was improving, and rickets and syphilis were becoming less. He was a little doubtful about the registration of stillbirths; it was a refinement. As many statistics as possible should be obtained, but they should not ask for stillbirths but for live-born and dead-born. He thought the statistics of abortions would be absolutely worthless if they were asked for.

Dr. G. KEPPIE PATERSON considered this notification would be far better to go through the hands of the medical officer of health than through those of the registrar; it should be made compulsory all over the country, and to be of value it must be secret between the medical attendant and the medical officer of health. Dr. Ballantyne had defined an ideal scheme to obtain a wider knowledge for the sake of national eugenics. The definitions were ideal, but some difficulty might arise in the notification. If compulsory, some of it would require to be done by midwives. In maternities and in dispensary practice where they could deal easily with a patient they might get important information to notify; but in private practice it might cause a great deal of trouble if the cause of the stillbirth or dead-birth was hereditary. Many were due to syphilis. This was recognised also in the evidence before the Commission on Venereal Diseases, and yet the majority of those with experience were against the compulsory notification of syphilis. If a medical man was compelled to put in the cause of a dead-birth as syphilis, it might involve him in a great deal of trouble in his practice. The husbands mostly deny it. What was one, then, to do? What was to be done to find out the cause? The husband would not submit to a Wassermann test, and what was to be done? If the cause of dead-births and stillbirths was not to be put in, of how much value were these statistics? It would always be a step in the right direction, but it would involve a very serious difficulty. Many medical men would never enter the cause at all or would insert it in such a way as to be useless.

Dr. A. H. F. BARBOUR agreed that it would be well to have "abortions" registered so as to show the tendency to diminution; he did not think, however, they would get any statistics because it would be necessary to show that these abortions occurred in the same family, and also that the frequency of abortion showed that it was related to infection. Premature birth resolved itself into the practical question whether the child was alive or not. The time stated of six months might be better extended to the birth of a viable child. What one wanted to get at was the health of the community. In order to do that two classes of cases must be distinguished—one class in which

[1] THE LANCET, March 28th, 1914, p. 896.

the child died in the uterus and was expelled subsequently, at what time it did not matter; and another class in which the death of the child occurred during the process of labour. In dealing with the latter the subject became complicated. In the first class there was some constitutional cause affecting the health of the community, while in the second one was at once brought up against the possible bad management of the labour on the part of the midwife or medical man. The management of labour was improving; there was now a better class of midwives. If one could prove that the child died during labour, then one was faced with a number of other causes which had nothing to do with the community. He considered it important to get information as to whether the child died in labour or not.

Dr. JAMES RITCHIE considered for scientific purposes it would be desirable to have compulsory notification of all pregnancies and abortions, but he did not think it was possible; they would be so incomplete as to be really impracticable. The more vital statistics that could be got the better for health. Notifications should be compulsory after 28 weeks of gestation and made to the medical officer of health, who would collect the statistics that were described and then forward them to the Local Government Board. Medical men and midwives should be paid for it.

Dr. J. HAIG FERGUSON said the paper from a scientific point of view was all that was to be desired, but from a practical point of view it was far too elaborate for any useful practical purpose. From the popular point of view a stillbirth meant a deadbirth. That was seen in the papers every day, and they could not get rid of it.

Dr. J. LAMOND LACKIE could see no reason whatever for registering stillbirths, but all cases of deadborn children ought to be registered; and a difference should be made with regard to ante-natal deaths and stillbirths.

Dr. BALLANTYNE, in reply, said there was an error in the heading, it should be ante-natal deaths (commonly known as stillbirths) or with stillbirths in inverted commas. The question of the practical value of such a measure was the same criticism as applied to all registration and notification such as in infectious diseases and tuberculosis. It might be optional at first to put in the cause, and after some years the insertion of the cause could be made compulsory after the profession had become accustomed to it. He considered that it would be quite possible to get a good result under notification; he could see difficulties with the registration. He was not conscious that he had asked that stillbirths should be separately notified. There was an actual difference in definition between deadbirth and stillbirth. If so, were they to accept the popular opinion? He considered respiration as the best sign of post-natal life; movement was not as it took place in the uterus. The subject they were striving for was the future health of the nation. They wanted to know about the congenital causes of deaths occurring within a few months of birth. He wished to push back the date of viability, as with the better class of incubator the fœtus had been made to survive at an earlier age.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Congenital Pyloric Stenosis.—Thrombosis of the Internal Jugular Vein.—Operative Treatment of Goitre.

A MEETING of this section was held on May 8th, Mr. A. BLAYNEY being in the chair.

Mr. C. A. K. BALL showed a case of Congenital Pyloric Stenosis in an infant aged 7 weeks treated by gastro-enterostomy. He said that three weeks ago he was called to the hospital to see a child whose bowels had not moved for ten days. The child from birth was said to be healthy. Oil and enemata had no effect, and it vomited when fed, and passed no urine. It was, therefore, considered that there must be obstruction high up, and as the child was in a very serious condition it was decided to open the abdomen at once. The pylorus was found to be greatly enlarged, and this enlargement appeared to extend into the duodenum. The swelling was hard and smooth on the surface. Plastic operation was not possible, as the obstruction seemed to be complete and was very hard. It being apparent that the child would die if nothing was done, it was decided to do a gastro-enterostomy. No difficulty presented itself in doing the operation. The child was very weak for two or three days, but in about 24 hours after operation the bowels moved, and three weeks after the operation it was quite strong and healthy.

Mr. W. PEARSON showed a specimen of Thrombosis of the Internal Jugular Vein removed from a boy, aged 14, who suffered from mastoiditis. One side had been operated upon, and while waiting to have the opposite side done he developed a high temperature, a foul-coated tongue, and rapid pulse. The optic discs were normal, and no mental symptoms were apparent. There was no tenderness over the mastoid, but there was extreme tenderness down the neck over the course of the jugular vein. It was obviously a case of infection of the lateral sinus. He described the operation which was carried out. A clot tapering off to the lower end was discovered. This clot extended down into the innominate vein. Thrombosis was present in all the branches round the vein. The vein was divided at the posterior belly of the omohyoid, and it was determined to remove the clot which was in the vein. A radical mastoid operation was then done, and round the sinus pus was found. Saline was irrigated through, the neck wound was drained, and the sinus packed with gauze. He considered that the infection took place through the lymphatics. The case was not much improved by the operation, and terminated fatally on the fourth day.

Mr. D. KENNEDY discussed the indications for Operation in Goitre and Exophthalmic Goitre, and gave details of the treatment as carried out by him. He advocated early operation in all cases, and always employed general anæsthesia.—Mr. BLAYNEY said he thought the question of operation in cases of exophthalmic goitre was not so easy. He suggested a classification into two distinct types. A patient might have had an enlarged thyroid for years, and in such a case the increase in the rapidity of the pulse was generally moderate and the degree of hyperthyroidism was not great, and with such a patient the operation was attended with no more than the ordinary risk. On the other hand, in cases where the gland was vascular, where there was great rapidity in the pulse and the skin was constantly moist, and there was evidence of sugar in the urine, he considered operation dangerous. If the operator treated cases of the first type it would be quite possible for him to produce good statistics, but in the latter class of cases he thought the death-rate would be higher than 4 per cent. He pointed out that Mayo recommended that the latter class of cases should not be touched. His own experience of exophthalmic goitre was confined to the first type of case.—Sir JOHN LENTAIGNE said he agreed with Mr. Blayney that there were cases of exophthalmic goitre which should be well considered before operation was undertaken, and that there were cases of another type not much more troublesome than cases of simple goitre. He considered that the use of local anæsthesia could hardly be foregone, and that in cases in which there was great dyspnœa etherisation appeared to increase the size of the goitre and thus increase the danger. He suggested that where local anæsthesia was employed a screen should be used to prevent the patient from seeing the blood. He considered that the disease was becoming more common than it was years ago.—Dr. W. M. CROFTON said he did not think the physician was so hopeless in the treatment of these cases as Mr. Kennedy seemed to suggest. If the tumours were causing dyspnœa surgical interference should, of course, be sought, but he had seen several cases in which the exhibition of pituitary and suprarenal extract had made the goitre disappear.—Mr. W. PEARSON said he agreed that sometimes medical treatment in those cases was efficient, but there could be no doubt that medical treatment would not remove a cyst from the thyroid. He disagreed that the physician was the best person to decide when a patient should be operated upon, as there was a danger that he might be opposed to operation until such time as the kidneys, heart, and liver had undergone permanent organic changes, and this should not be waited upon before the operation was undertaken. In all early cases, where the symptoms were mild, he suggested that medical treatment should be given a trial. If a case in which there was no glandular enlargement did not respond to medical treatment, he considered that the right surgical

treatment would be pole ligation instead of extirpation; but ligation of the arteries alone would not, he thought, suffice. Post-operative treatment he looked upon as important, the most important thing being to give the patient large quantities of saline for the first 48 hours. Acute thyroidism coming on after operation he thought was largely due to rough handling during the operation, and not to absorption from the cut surface of the gland.—Mr. KENNEDY, replying, said he never advocated operation in all cases of exophthalmic goitre, although he suggested that if all cases were operated upon early no difficulty would be experienced. He thought it was generally admitted that when medicinal means were successful the success was due to the rest rather than to the drugs used. One of the motives of his paper was to call the attention of physicians to the good results of operative treatment in these cases. He considered that the adhesion of the lobe to the trachea was a common reason for dyspnœa. He agreed that post-operative hyperthyroidism was due to rough handling during the operation.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Royal Devon and Exeter Hospital on May 8th, Mr. Ransom Pickard, the President, being in the chair.—Dr. R. V. Solly showed: 1. A case of Actinomycosis of the Jaw in which he had combined vaccine treatment with iodide of potash, the former seeming to have greatly influenced the cure of the case. 2. A girl with Hypertrophy of the Left Side of the Trunk and of the Left Arm and Leg, with lack of power on this side and lowered temperature. Dr. Solly suggested the pituitary body as a possible source of the condition. 3. Cast of Œsophagus from a case of fibrinous inflammation of the œsophagus. 4. Alveolar Sarcoma of Skin. 5. Spleen from case of spleno-medullary leucocythæmia, together with blood films from the same.—Mr. Russell Coombe showed a case of Mucocele of Appendix.—Mr. A. L. Candler read a paper entitled "Experimental Proof of the Value of a Mask over the Surgeon's Mouth during Operations." He said he had experimented with B. prodigiosus for the reasons (1) that it was absent from ordinary air and from the mouth; (2) that it grew in red colonies and therefore could easily be distinguished from other organisms macroscopically; and (3) that it was non-pathogenic. These bacilli were added to water until the mixture was turbid and slightly pink, and Mr. Candler then filled his mouth with the suspensions thus formed, gargled, and immediately proceeded to either breathe, speak, cough, or sneeze, without or with a mask, over a series of sterile agar plates. Any red colonies of micro-organisms found on the plates after incubation must therefore have come from within his mouth. The plates used were of agar in Petri dishes of a diameter of 3½ inches, and the mouth was held in all cases 18 inches away from the plate. Each experiment was conducted in a separate room in order to avoid any air infection of the plate from a previous experiment. The mask used was of fine butter muslin reinforced with plain gauze over the nostrils and mouth. In some tests six layers of gauze were used and in others eight. A table prepared from the results showed that with quiet breathing and speaking no B. prodigiosi left the mouth. Coughing for two minutes caused only a few bacilli to be expelled, and these were controlled by a mask of eight layers of gauze, four being insufficient. One sneeze produced 130 colonies in a circle of 3½ inches at a distance of 18 inches, and Mr. Candler had found even eight layers of gauze insufficient to keep back an organism during prolonged sneezing, although, of course, there was reduction in the infection. Mr. Candler said that in his experiments the mask had been subjected to far more severe tests than would occur in surgical practice, and therefore such a mask was efficient and useful to the surgeon, for with it he could speak, clear his throat, and even cough without fear of infecting the wound. He recognised that objection to masks was sometimes raised by surgeons who wore spectacles, but in the pattern he described (and showed) to the meeting the disadvantages were obviated. Finally, Mr. Candler hoped that he had shown that a mask, such as he had described, was not only necessary, but efficient, and a very safe guard to the patient during surgical operations.—In the discussion which followed the President said he had so far hesitated from using a mask in operations upon the eye, which were usually of brief duration.—Dr. W. Gordon alluded to the carrying power of a sneeze and its importance both from a medical and a surgical point of view.—Mr. Robert A. Worthington was confirmed in his own mind that masks were unnecessary. He excepted operations on bone and in the neighbourhood of joints.—Mr. Russell Coombe adopted a mask in heavy operations, such as removal of ovarian cysts, where free perspiration was likely to be caused to the surgeon.—Mr. Candler, in his reply, said that everything should be done with a view to diminishing infection of wounds and making for the comfort of the patient. If surgeons admitted the necessity of a mask in bone operations it showed a mistrust of their own mouths, which went to support the case he had sought to prove.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held in Queen's University, Belfast, on May 14th, Mr. A. B. Mitchell, the President, being in the chair.—Sir John Byers showed a mounted specimen of the Uterus, Ovaries, and Tubes, injected after the Spalteholtz method, by which, through transmitted light, the various parts were clearly displayed, especially the arteries and veins, in a way that no other method yet devised could at all equal. He also exhibited a model of a Female Pelvis with the various organs and structures *in situ* which, he said, was of great value in clinical teaching, as it enabled students to recognise better the landmarks.—Mr. R. J. Johnstone showed a Uterus which he had removed by Wertheim's method for a malignant adenoma from a married woman. He also exhibited an early Ovum from a case of extra-uterine pregnancy, and a very large Tuberculous Pyosalpinx.—Dr. J. M. Gibson read a paper on the Experimental Production of Heart-block. A frog was perfused with a weak solution of yohimbin, a drug obtained from a plant in Central Africa, which caused heart-block by acting on the auriculo-ventricular bundles of His. After a time adrenal solution—which is a stimulant—was perfused, and gradually the condition of heart-block passed off. Under both conditions Dr. J. E. MacIlwaine took records and electrocardiograms, which were shown and compared with the condition of heart-block as it attacks the human being, the various tracings being very much alike.—Professor T. H. Milroy gave an account of hydrogen ion concentration changes in the blood during apnœa, and he and Dr. Gibson also gave an account of changes in the reaction of certain of the body fluids—blood, gastric juice, and milk.—An interesting discussion followed, in which Professor J. A. Lindsay, Dr. J. L. Rentoul, Professor Milroy, Sir John Byers, Dr. MacIlwaine, and the President took part.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on May 1st, Mr. A. Ernest Maylard, the President, being in the chair.—Dr. George A. Allan demonstrated a case of Complete Heart-block in a patient who for the past ten months had been subject at frequent intervals to fainting fits with loss of consciousness. These fits were associated with the inception of a very slow ventricular rhythm, varying from 20 to 40 per minute, and dependent on complete heart-block. No other manifestations of the Stokes-Adams syndrome, such as general convulsions, were present. The Wassermann and luetin tests were positive, and gummata were present on the iris. Polygraph tracings showed complete dissociation of auricular and ventricular contractions, the former numbering 75 to 96 and the latter 22 to 27 per minute.—Professor T. K. Monro, Dr. G. H. Edington, and Dr. J. Shaw Dunn described a case of malignant ganglio-neuroma of the suprarenal in a boy aged 3½ years, and gave a microscopic and lantern demonstration. Post-mortem examination showed a tumour the size of a large orange in the left suprarenal body with metastatic deposits in the retroperitoneal, mesenteric, mediastinal, cervical and inguinal glands, and in the bones of the skull and the ribs. Part of the tumour was firm and pale and was composed of mature nervous tissue—ganglion cells and fibres; part was soft and obviously malignant, and was composed of smaller cells and fibrillæ corresponding to the embryonic nerve cells and fibrillæ which form the sympathetic nervous system in normal development.—Professor Monro and Dr. G. Haswell Wilson reported a case of Malignant Tumour of the Neck which involved the spine and the cervical and brachial plexuses.—Dr. Edington showed a youth, aged 16, on whom he had operated on Oct. 16th last for laceration of the right kidney. The lad had sustained the injury by falling on the deck of a torpedo

boat and striking his back against a fixed ring projecting from the deck. Laparotomy by transverse incision was performed, and the right kidney was found in two completely separated parts and was removed. The left kidney appeared normal. Recovery was excellent.—Dr. Edington and Dr. Dunn showed a Partially Pyonephrotic Kidney, with double ureter and pelvis. The specimen was obtained from a married woman, aged 33, who had a history of pain in the right side with bilious vomiting occurring at intervals for the past six years. Latterly there had been swelling in the right flank disappearing coincidently with free flow of muddy urine; the urine contained pus. The patient sweated at night and had lost flesh. Nephrectomy was performed through a transverse incision through the anterior abdominal wall; the other kidney appeared normal, and the patient made a good recovery. The excised kidney proved to have a double ureter and pelvis; the pyonephrosis affected the lower pelvis. The upper ureter led to a normal pelvis and kidney perched on the upper surface of the cyst. There was nothing to indicate the cause of development of the obstruction; no calculi were found in the pelves or ureters.—Mr. Henry Rutherfurd showed: 1. A Colon with Ulceration and Perforation of the Root of Volvulus of Sigmoid after operation for reduction. The patient was a man aged 65, bedridden and paralysed. 2. The parts concerned in a Fracture of the Femur by direct violence, where gangrene resulted from pressure by the lower fragment on the femoral artery and vein at the lower end of Hunter's canal. The vessels were not torn but had been hooked round to the outer side of the femur by displacement of the lower fragment. 3. Water-colour drawing of a case of Gangrene of the Penis in a man aged 32, from causes so far unexplained. There was no evidence of gonorrhœal infection. 4. A fresh specimen of Chorion-epithelioma of the Uterus.

Reviews and Notices of Books.

La Geographia Medica de la Peninsula Iberica.

By Dr. Ph. HAUSER. Three volumes. Madrid: Eduardo Arias. 1913. Pp. 633 + 611 + 364.

IN his preface to this monumental work on the demography of the Iberian Peninsula Dr. Hauser speaks of Spain as his adopted country, and alludes with feeling to the 40 years he has spent there in professional and literary work. Spain has reason to be grateful to her naturalised son, for Dr. Hauser has striven with unwearied energy and conspicuous literary ability to convince the Spanish authorities, national and municipal, of the appalling amount of mortality and unnecessary suffering directly due to apathy in matters of hygiene and sanitation, and of the urgent necessity for sanitary reform and for efforts to provide a pure and abundant water-supply in the many towns and districts in which the water at present available is both scanty and contaminated. In 1883 Dr. Hauser published his "Estudios Medico-topographicos y Sociales de Sevilla" in two volumes, and followed later, in 1903, with a similar work on Madrid, "Madrid bajo el Punto de Vista Medico-social."[1] Again, in 1887 there appeared from Dr. Hauser's pen a work in three volumes based on the experiences afforded by the great cholera epidemic in Spain in 1885, "Estudios Epidemiologicos Relativos a la Etiologia y Profilaxia del Colera." The interest excited by these essays in demography, both in Spain and beyond her borders, inspired Dr. Hauser with the design of dealing fully with the climatology and medical geography of Spain and Portugal, and the present work is the result.

The first volume is devoted chiefly to a detailed study of the climatology of the peninsula. Among the various factors determining climate Dr. Hauser rightly regards physical geography as of fundamental importance, and accordingly he devotes Part I. of the volume, comprising Chapters I. to VII., to a description of the general surface contour of the peninsula, its mountain and river systems, its geology, and the geotectonic evolution of the peninsular mass. All this might sound more fitted to a technical work on geography than to a medical treatise; its bearing, however, on the lives and health of the human inhabitants of the regions described is never lost sight of. Part I. closes with an interesting chapter on the mineral waters of Spain in relation to the evolution and geological structure of the Peninsula, in which the author marshals a mass of facts which help towards an understanding of the relation existing between the chemical and mineralogical character, physical action, and temperature of the various medicinal waters and the geology of the districts they traverse and in which they issue to the surface. The second part of Vol. I. deals with climatology proper, opening with a chapter on the influence of the soil on climate. The combined influence of the soil and of atmospheric conditions on the flora of the peninsula is next discussed, this section containing an interesting description of the steppes of Spain, which with Hungary is the only European country outside Russia possessing true steppes. In the remaining chapters of Part II. rainfall, humidity, evaporation, and atmospheric pressure in the above zones are dealt with, and the section closes with a brief account of the powerful effects of solar radiation and a final chapter on the volcanic areas of Spain and on earthquake action. Part III. deals with the ethnic evolution of the Iberian peninsula from prehistoric to modern times and the bearing thereon of its geological development, an interesting account being given of the anthropometry of the different zones and the distribution over the peninsula of brachycephalic and dolichocephalic types. The volume is enriched by a large number of excellent maps and plans, and a series of elaborate meteorological charts.

The second volume is devoted to demography proper. Part I. deals with the movement of population in Spain and Portugal, with birth, marriage, and mortality rates *en gros*, and with emigration, and concludes with an interesting account of the beautiful but almost uninhabited region, the Alpujarras, and of Las Hurdes, an isolated district in the centre of Spain, whose miserable inhabitants live under conditions of unimaginable squalor, compared with which the worst conditions prevailing in the west of Ireland in the worst times of last century can be regarded only as luxurious. Part II. deals with the hygienic and sanitary conditions of the towns and provinces of Spain, and gives a detailed survey of the vital statistics of Spain as regards the chief infective fevers during the years 1900–06. This survey is followed by chapters on tuberculosis, cancer, and paludism, which are of special interest.

The third volume deals with the slowly developing infections—leprosy, pellagra, syphilis, goitre, and ankylostomiasis—and discusses the distribution of arthritism and alcoholism, and the influence of the physico-chemical characters of the soil of certain regions in Spain in the etiology of such diseases as cholera, enteric fever, rickets, and arterio-sclerosis, with its pendant cerebral hæmorrhage. Several chapters are devoted to the distribution of disease throughout the peninsula, as

[1] Reviewed at length in THE LANCET, Feb. 21st, 1903, p. 523.

shown in tables of mortality, and the work concludes with a full and interesting account of suicide in Spain.

We cannot speak too highly of Dr. Hauser's work as a whole; it is a monument of enlightened industry. The work, moreover, is admirably got up, and both the printing and the reproduction of maps, plans, charts, and tables are deserving of every praise.

Handbuch der Tuberkulose.

In fünf Bänden. Herausgegeben von L. BRAUER, G. SCHRÖDER, F. BLUMENFELD. Vol. I. With 116 illustrations, curves, coloured plates, and photographs. Leipzig: J. Barth. 1914. Pp. viii. + 792. Price, paper, 35 marks; bound, 37 marks.

TEN years ago Schröder and Blumenfeld published their well-known text-book on the treatment of chronic phthisis. They have decided to issue its second edition in the form of a massive "Handbook of Tuberculosis" in five volumes, of which the first has just appeared. In addition to the three editors, 45 contributors are mentioned on the title-page, almost all of them Germans.

The first volume is divided into two sections, the first given up to general considerations, the second beginning the description of pulmonary tuberculosis. There are nine contributors to the first section, which leads off with a historical review of tuberculosis by Predöhl, perhaps a rather perfunctory account of a subject that this well-known historian of tuberculosis might have made much more illuminating. The pathological anatomy of the disease is described by Tendeloo; the tubercle bacillus itself is the subject of a very thorough article of 160 pages by Much, who also contributes 94 pages on the subject of immunity to tuberculosis. He agrees with Römer in believing that the tuberculous infection during infancy or childhood, which is so common as to be an inevitable incident of life in civilised countries, affords a most valuable degree of acquired immunity to subsequent infections with tubercle bacilli. Inherited immunity to tuberculosis, handed on from mother to child, he believes to be of but trifling and transient importance. Some account of tuberculosis in animals and the way in which it must be combated is contributed by C. Dammann, and this article contains a quantity of interesting information usually to be met with only in veterinary works. In the second section of the volume are half a dozen articles on various aspects of the diagnosis of pulmonary tuberculosis and on the clinical forms of this disease. An excellent account of the clinical significance of the various tuberculin reactions is given by J. Ritter, who comes to the conclusion that the results yielded by these tests are often not in themselves enough to enable the question, "Does the patient require treatment?" to be answered; it is often necessary to keep the patient under observation for a time in order that clinical evidence as to his condition may be obtained, and his social condition must also be taken into careful consideration.

It is not possible in a short review to do justice to the many excellences of this encyclopædic work. It is well written, though naturally somewhat uneven in merit; countless references to the literature are given; the illustrations are well chosen, and many of them are very good. Full justice is done throughout to the work of the German school of medicine and pathology; the French, American, and English writers on tuberculosis, though not wholly neglected, appear generally to receive scantier notice in this volume than they deserve. The "Handbook" promises to be by far the most complete account of tuberculosis in existence.

Defective Ocular Movements and their Diagnosis.

By E. and M. LANDOLT (Paris). Translated by ALFRED ROEMMELE, M.B., Ch.B. Glasg., and ELMORE W. BREWERTON, F.R.C.S. Eng. London: Henry Frowde and Hodder and Stoughton. 1913. Pp 99. Price 6*s.* net.

Dr. E. Landolt has long been an authority on the ocular muscles. He has repeatedly written on the subject both in French and German. In this small volume, in which he has associated with his son, Dr. M. Landolt, a lucid and accurate résumé of the chief facts of the anatomy, physiology, and derangements of the extrinsic ocular muscles is given. So small a book devoted to so large a subject can be little more than a notebook of the more prominent facts, but, as is often the case in French works, it reads less like a précis than might be expected. We note that very little space is allotted to concomitant strabismus, and such as it is, the reference is chiefly to the differential diagnosis from paralytic strabismus.

This brochure is, indeed, so condensed that it can be commended rather as a useful reference book than as a guide to the student. A sound diagnosis in the cases met with clinically cannot be formed without an accurate knowledge of the symptoms and signs of paralysis of individual muscles, and such knowledge is concisely and clearly stated here. Clinical experience, however, shows that what may be called the academic paralyses occur relatively seldom and offer little difficulty. The really difficult cases are those of partial paralysis, often showing an unexpected grouping of muscles. When these are combined with latent squints, rendered manifest by the abnormal paresis, great difficulty may be experienced, and it is to be regretted that writers on the subject do not pay more attention to these, which are perhaps the most important cases.

The book has been well translated, but is not free from misprints. A table of contents would have been advantageous, for the arrangement of the sections is somewhat unusual.

Manual of Obstetrics.

By JOHN OSBORN POLAK, M.Sc., M.D., Professor of Obstetrics and Gynæcology in the Long Island College Hospital; Professor of Obstetrics, Dartmouth Medical School, &c. London: D. Appleton and Company. 1914. Pp. 468. Price 12*s.* 6*d.* net.

THE object of this book is to place the essential facts and principles of obstetrics within the easy grasp of the student. It is intended as a systematic introduction to more elaborate treatises, and as the author points out in his preface his experience has shown him that if the student can be made to master the elements of a subject, complete and systematic knowledge of it becomes a matter of easy growth. Practical topics have received most attention and emphasis is given to them by the use of italics.

In the chapter on reproduction we notice that the statement is made that some of the male sex cells acquire two accessory chromosomes during maturation: these spermatozoa give rise to female offspring, while the spermatozoa which develop without the accessory chromosomes give rise to male offspring. We were not aware that this fact had been

definitely proved in man, although it has been shown to be probably the case in some other animals. In a book which is intended to be primarily practical it seems rather anomalous to devote nearly 80 pages to anatomy and development and some five pages to a list of anomalies.

The section on the management of labour is well written and full. We cannot, however, agree that the membranes should be preserved until they protrude at the vulvar orifice; when this occurs it practically always means that the amnion and chorion have been separated from one another, and this certainly encourages retention of a portion of the chorion. Nothing is said of the danger to the fœtus of giving morphia and scopolamine for the production of "Dämmerschlaf." In the section on the treatment of labour in flat pelves with a conjugate of 2¾ inches or less, Professor Polak says that at full term Cæsarean section or the Porro operation is indicated; we presume he really means supravaginal hysterectomy after Cæsarean section, as we note that on p. 411 he points out that the classical Porro operation is now practically superseded by the modern supravaginal amputation. The section on the treatment of placenta prævia is entirely in accord with the best English teaching at the present time, and it is interesting to note that the author is not very enamoured of the treatment by Cæsarean section. In any condition in which it is necessary rapidly to terminate the pregnancy and the cervix is undilated and rigid, vaginal Cæsarean section is recommended. In the prevention of ophthalmia neonatorum the fact that when the eyes are properly treated with silver nitrate or argyrol the immunity is practically absolute is well borne out by the experience during the past year of one of the largest extern maternities in London. During the year only one case of ophthalmia occurred, and in that instance the student attending the case had forgotten his bottle of silver nitrate.

This is a good book, much better than many more pretentious manuals, and the teaching is practical and based on sound principles.

Materia Medica, Pharmacology, Therapeutics, Prescription Writing, for Students and Practitioners.

By W. A. BASTEDO. London: W. B. Saunders Company. 1913. Pp. 602, with 60 figures. Price 15*s.* net.

THIS workmanlike volume is an adaptation, for the most part, of lectures delivered at Columbia University. It is divided into three parts. Part I. gives an introduction to the study of pharmacology, its objects, methods, and scope. Part II., occupying 470 pages, is devoted to the consideration of all the various drugs in common use, grouped according to their special therapeutic properties. Lucid descriptions of the way in which the various drugs act are given, particularly from the point of view of experimental physiology. An excellent characteristic of the book is the fulness with which the more important drugs are considered, such as digitalis, nux vomica, and belladonna. The author is thoroughly up to date, and offers his readers good résumés of current views upon the actions of these and many other drugs. He is perhaps a little severe on smokers, quoting with apparent approval the highly coloured statement that "it is generally conceded that the use of tobacco by college students is closely associated with idleness, lack of ambition, lack of application, and low scholarship." Part III. is an account of how to write prescriptions. The author advises that these should be written in Latin. The United States Pharmacopœia, and the National Formulary ("N.F.") of the American Pharmaceutical Association, which attempts to standardise some of the non-pharmacopœial preparations commonly used in America, are naturally the pharmaceutical authorities to which Dr. Bastedo chiefly refers.

The book is well got up and well printed; it has an excellent index and but few misprints. It may be pointed out, however, that the spellings "anidrotics" and "anhydrotics" (pp. 386, 565) are both incorrect, and therefore inferior to "anhidrotics," as applied to remedies designed to diminish sweating. Dr. Bastedo's book is not written with the object of getting students through formal examinations; it contains a large amount of sound practical advice, and may be recommended to the attention of all practitioners of medicine who wish to know what drugs to give and why to give them.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India.

New Series, No. 60. *Studies on the Mouth Parts and Sucking Apparatus of the Blood-sucking Diptera.* No. 4. By Captain F. W. CRAGG, M.D., I.M.S. Calcutta: Government Printing Department. 1913. Pp. 78. Price 1*s.* 9*d.*, or Rs. 1.2.

WE have recently noticed other contributions to this useful series, and among the authors of those contributions Captain Cragg has appeared more than once. The present memoir is the fourth of the "studies," and deals with the comparative anatomy of the proboscis in the blood-sucking Muscidæ, with the genera Musca, Philæmatomyia, Stomoxys, Hæmatobia, Hyperosia, and Glossina. The text is illustrated by five plates in which the mouth parts are clearly displayed in large and therefore readily intelligible figures. But the work is of a purely technical character, serving as a contribution to anatomical entomology; it deals with more general matters only in an incidental way. The whole question, however, of the habits of these flies, so closely associated with the transference of parasitical disease, cannot be entirely evaded, even in the most technical of memoirs of the character of that which we notice here. And in fact Captain Cragg has a not uninteresting section upon the development of the blood-sucking mode of life in the Muscidæ.

He points out that the non-biting flies of the genus Musca are mostly omnivorous in habit, and particularly affect animal juices; it is a matter of common observation that they are especially attracted by wounds, upon the exudations from which they feed; they will also form temporary associations with actual blood-sucking flies, taking advantage of the wounds which the latter have caused and filling themselves with the flowing blood after the Hæmatobia or other biting form has become replete and flown away. Furthermore, it seems possible that the "teeth" upon the prestomium may at least clear away a clot and permit access to the blood or other animal juice beneath. It seems therefore reasonable to suppose that an accentuation of these teeth combined with other structural changes in the mouth parts may have succeeded to such habits, and in course of time have converted an omnivorous muscid to a purely blood-sucking form. It would follow from

this that the parasites originally belong to the flies and not to the vertebrates which the modified forms bite.

Physiological Histology of Man and Mammalian Animals.

Illustrated by Microscopic Preparations, with Explanatory Text and Drawings. By Professor Dr. FR. SIGMUND, Teschen (Austria). English edition by C. LOVATT EVANS, University College, London. In ten parts, each consisting of a case of specimens and text. Price, single parts 10*s.* 6*d.*; by subscription 10*s.*, with postage extra. London: English Agents, Messrs. Carl Zeiss, Limited.

THE complete work, of which we have received parts 1 to 6, will consist of ten "parts." Each part comprises (1) a case of 10 to 13 microscopical preparations mounted on 10 slides—each slide is labelled, the names being given in German, French, and English; and (2) an explanatory text of 16 to 24 pages with 20 to 30 figures in black and white after original drawings by the author.

It is claimed that the text and preparations will be useful to the biologist, zoologist, botanist, physiologist, and medical practitioner. There are, however, few medical practitioners who can afford to pay £5 for 100 microscopic preparations; and, as a matter of fact, in every well-equipped medical school where animal histology is well taught each student at the end of the course possesses a collection of microscopical specimens of normal tissues and organs, partly prepared by himself, and partly sections made for him by well-known laboratory methods. It is no uncommon thing for each student of histology in this country to make a collection of 200 specimens or even more, including not only sections prepared by the ordinary methods, but also specimens showing the terminations of nerves in the cornea, motor plates in muscle, the cochlea, and the central nervous system stained by the well-known Golgi, Cajal, and Weigert methods. We, therefore, doubt whether such sections, however well prepared and arranged, will be required by medical practitioners who were well grounded in histology during their student days. The preparations, we should add, are neatly mounted.

LIBRARY TABLE.

A Digest of the Law and Practice Relating to Local Government in England and Wales (including London). By ARTHUR D. DEAN, F.L.G.A., Solicitor of the Supreme Court, and E. J. RIMMER, of Lincoln's Inn and the Northern Circuit, Barrister-at-Law. London: Butterworth and Co. 1914. Pp. 333. Price 5*s.* net.—The joint compilers of this work profess to have aimed at providing a work suitable for students, officials, and councillors alike, and generally speaking they have done so. The subject, however, is a very large one, and the task of analysing and extracting the essential parts of statutes and of presenting them with clearness and accuracy is not lightly to be undertaken. We do not profess to have checked every detail in this book, but from what we have seen in portions likely to be of interest to the medical profession more meticulous care might have been exercised with advantage. We are, for example, not inclined to accept the definitions given of the coroner's powers, either where it is stated that his duty in the City in relation to fires is only "to inquire into incendiary fires," or that his principal duty is to hold an inquest over the body of "any person who has been killed, or who has died in prison, or who has died suddenly if the cause of death be unknown." The section under which coroners hold inquests would indeed be a puzzling one if it was so worded. Again, on consulting the index we are referred to p. 194 for the powers of a medical officer (presumably a medical officer of health) as to factories and workshops. At the page named, however, the regulation of hackney carriages is the subject treated. Misprints in an index are often very inconvenient, more so, of course, than unimportant literal errors in a paragraph of the text. We have not checked the "Table of Statutes," but glancing at it in connexion with subjects of medical interest we find no reference in it (or in the paragraph on medical inspection of school children) to the Local Education Authorities (Medical Treatment) Act, 1909. It is difficult to include everything in a comparatively brief synopsis, but we see no reason to omit this Act if the subject is to be dealt with, and conclude that the absence of reference to it is accidental.

Lectures on Medical Diseases for Nurses. By DAVID FORSYTH, M.D., D.Sc. Lond., F.R.C.P. Lond. London: Baillière, Tindall, and Cox. 1914. Pp. 222. Price 3*s.* 6*d.* net.—This little work does not deal at all with nursing, but aims only at giving such an account of medical diseases as shall be intelligible to nurses and add to the interest of their cases. It is clearly and simply written and seems well adapted to the end in view. The author believes, we think rightly, that those nurses are keenest to learn about the nature of disease who best appreciate the limits of their own province. Some general remarks are made on treatment, prescriptions, and dietaries, and then the chief diseases of the various organs are considered in order, their causation and principal features being described and the main lines of treatment indicated. Dr. Forsyth emphasises the fact that not the disease alone but the patient has to be treated. The experienced nurse knows this well, and it is very necessary that from the beginning of their training the probationers should fully realise that such is the case. In the chapter on hysteria and psycho-neuroses the author deals adroitly with a very difficult subject. Throughout the book there is a considerable use of anatomical and pathological terms which no doubt would receive oral explanation in a lecture.

Notes on Midwifery, especially for Midwives. By C. F. LASSALLE, M.D., C.M. Edin., D.P.H. Oxon., Government Medical Officer, Port Health Officer, Port of Spain, Trinidad. Edinburgh: William Bryce. 1913. Pp. 126. Price 2*s.* 6*d.* net.—This little book is a reproduction of the lectures on midwifery given by the author to nurses at the Colonial Hospital, Trinidad. It is a series of notes, expressed in clear and simple language, of just those facts which nurses require to know, and should prove useful to the class for whom it is intended. The rules of the Midwives Board are added, and there is also a useful glossary of terms in common use.

JOURNALS AND MAGAZINES

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., ALEX. MACALISTER, ARTHUR THOMSON, ARTHUR KEITH, and ARTHUR ROBINSON. Vol. XLVIII. Third Series, Vol. IX., Part III. April, 1914. London: Charles Griffin and Company, Limited. Published quarterly at 6*s.*; annual subscription 21*s.*, post free.—This issue contains an unusual number of interesting contributions, and is especially welcome for the

fact that nearly every branch of anatomical study is represented.—Professor Peter Thompson contributes to the study of embryology an interesting paper on the Development of the Lobus Quadratus of the Liver. This paper is well illustrated by reconstruction models, &c., and it confirms in many ways the findings of Cantlie upon the limits of the right and left hepatic lobes.—Professor J. T. Wilson, of Sydney, records some Observations upon Young Human Embryos, illustrated by photomicrographs of sections of an embryo of 1·64 mm. The plates which are to make this article complete are held over until next issue.—Dr. F. Wood Jones briefly describes the condition of the Lower Ends of the Wolffian Ducts in a Female Pig Embryo, the note being illustrated by a series of photomicrographs.—The study of anomalies is represented by a most useful paper by Mr. A. Ralph Thompson, upon the Congenital Abnormalities of the Upper Urinary Tract, and Some Points in the Surgical Anatomy of the Kidneys, Ureter, and Bladder. The paper is for the most part statistical, but there are several points in gross anatomy well worth further attention. Mr. Thompson sounds a warning note concerning the ready teaching and the ready acceptance of the doctrine of the free stripping of peritoneum from the anterior surface of the distended bladder. There seems to be little doubt that we are over-estimating this peritoneal stripping in our teaching, and consequently are making too light of the risks of penetrating the peritoneal cavity in suprapubic operations.—Professor A. Francis Dixon contributes a note on two cases of well-marked Suprasternal Bones. These rudiments are admirably shown in X ray pictures; their morphology is not discussed.—Mr. D. Davidson Black, of Cleveland, Ohio, describes two cases of Cardiac Malformation, and this paper is rendered more than usually interesting by some discussion of the relation of these cardiac anomalies to the cardiac functions.—Dr. Harold Rischbieth, of Adelaide, communicates a paper on an Anomaly of the Inferior Vena Cava. The anomaly, which consists of duplication of the post-renal segment, is well illustrated and fully discussed.—To physical anthropology Professor F. G. Parsons contributes an elaborate study of the Characters of the English Thigh Bone, which is a useful addition to our knowledge, since it has evolved, at any rate, a standard femur for Midland Englishmen of the Middle Ages. The results are obtained from exhaustive measurements of 300 femurs from the bone crypt of Rothwell in Northants, and the utility of such a standard for the purposes of anthropological comparisons is obvious.—An interesting study of the Inter-relationship of some Trunk Measurements and their Relation to Stature, by Dr. Rupert Downes, of Melbourne, brings out several noteworthy points, among them the fact, long insisted on by artists, that the pelvis of the male is absolutely broader than that of the female.—Mr. Bernard Coen, of Sydney, communicates a paper showing that at times diploic veins may contribute to the meningeal venous grooves upon the inner surface of the parietal bone.

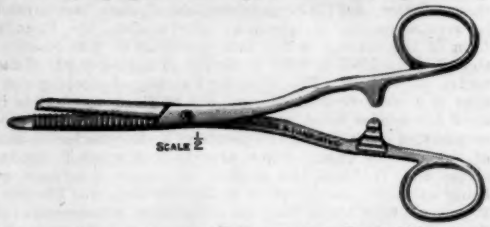
British Dental Journal.—To the issue dated May 1st of this publication Mr. F. St. J. Steadman contributes a thoughtful paper on the Treatment of Dental Caries in Children, based on his experience in the treatment of nearly 7000 children. He is a strong supporter of the free removal of all septic teeth, and ably answers the criticisms that have been brought against this method of treatment.—Dr. J. Stuart Ross gives an account of the method adopted at the Edinburgh Dental Hospital of inducing anæsthesia by means of nitrous oxide and oxygen combined with a small dose of ethyl chloride.

BIRMINGHAM GENERAL HOSPITAL.—At a meeting of the election committee on May 22nd Dr. A. Stanley Barnes, senior assistant physician, was elected honorary physician for a term of 15 years in place of Sir Robert Simon, M.D., resigned. Dr. Barnes was appointed assistant physician to the hospital in June, 1906. He is honorary curator of the pathological museum of the Birmingham University, and a Fellow of the Royal Society of Medicine. He formerly held the posts of assistant demonstrator of physiology at Mason's College, resident medical officer at the National Hospital for the Paralysed and Epileptic, Queen-square, and pathologist at the Queen's Hospital, Birmingham. He was recently elected a Fellow of the Royal College of Physicians.

New Inventions.

PERFORATING FORCEPS FOR LIGAMENTARY SUSPENSION OPERATIONS UPON THE UTERUS.

I HAVE designed a perforating forceps for those operations in which the round ligaments are employed for suspension of the retro-displaced uterus, more especially for that known as the "sling" operation. In this operation the round ligaments are drawn through an opening made in the broad ligaments and stitched to the posterior uterine wall. The instrument is in the form of a modified pressure forceps which has attached to one blade a small cutting edge that easily perforates the broad ligament, the clamp portion being used for grasping the round ligament and drawing it through



the opening in the broad ligament and attaching it in position prior to stitching it to the uterine wall. In the performance of the sling operation much delay may occur through difficulty in perforating the broad ligament by blunt forceps, the tissue sometimes having to be incised with scissors, and frequently an unnecessary amount of damage may occur to the tissue. With the above instrument there is no delay and the technique is greatly improved. The instrument can also be used in Gilliam's and other intra-abdominal suspension operations upon the uterus.

The instrument has been made for me by Messrs. Allen and Hanburys, of Wigmore-street, London, W.

Glasgow. A. LOUISE MCILROY, M.D. Glasg.

THE REPORT OF THE INTER-DEPARTMENTAL COMMITTEE ON SLEEPING SICKNESS.[1]

THE work of Surgeon-General Sir David Bruce, chief of the British Sleeping Sickness Commission, led him to believe that wild animals in Nyasaland were infected with the human parasite of sleeping sickness. As a result of other researches in Central Africa he came to the conclusion that wild game constituted the main, if not the only, reservoir of the virus from which the tsetse fly derived its infectivity; and a somewhat similar opinion was expressed by Dr. Allan Kinghorn and Professor Warrington Yorke, who investigated the sleeping sickness problems in Rhodesia. One of the chief recommendations of these experts was that the effects of destruction of game in a limited area should be tried experimentally with a view to eradicate the local endemicity of the infection. These opinions were not universally accepted, and objections were at once raised against any proposal for exterminating wild game. Demands were also made for further investigation of the subject before any action was taken, and accordingly the Secretary of State for the Colonies in August of last year appointed a committee of 16 members, of whom the medical representatives were Sir John Rose Bradford, Sir William Leishman, Professor Charles J. Martin, Dr. W. A. Chapple, M.P., and Dr. A. W. G. Bagshawe, the Earl of Desart acting as chairman. The terms of reference were to report on (1) the present knowledge available as to the parts played by wild animals and tsetse flies in Africa in the maintenance and spread of trypanosome infections of man and stock; (2) whether it is feasible to carry out an experiment with regard to game destruction in a localised area; (3) whether it is advisable to attempt the extermination of wild animals locally or generally with a view of

[1] Report of the Inter-Departmental Committee on Sleeping Sickness. Presented to Both Houses of Parliament by Command of His Majesty. Printed under the authority of H.M. Stationery Office by Eyre and Spottiswoode. London. 1914. Pp. 26. Price 3d.

checking trypanosome diseases; and (4) whether any other measures should be taken to obtain means for controlling these infections. The report now presented is signed by all the members, but attached to it is a supplementary memorandum by Dr. Chapple and Mr. J. Duncan Millar, M.P., who, agreeing with the general conclusion that wild animals form one of the reservoirs of trypanosomes pathogenic to stock, wish to express their decided opinion that these wild animals form also one of the reservoirs of trypanosomes pathogenic to man.

Trypanosomes and Trypanosomiasis.

The committee considered the subject under three heads: (1) the Uganda form of sleeping sickness, of which T. gambiense is the parasite, and which is spread by glossina palpalis; (2) the Nyasaland form of the disease, also occurring in Rhodesia, caused by T. rhodesiense and spread by G. morsitans; and (3) trypanosomiasis of stock transmitted by several species of glossina. Fortunately, the Uganda form of the malady is not now epidemic in that country, though from 1898 to 1906 it carried off some 200,000 of the native population. The Nyasaland variety of sleeping sickness is a more virulent disease, but at the present time it does not appear to be extending. As regards the trypanosomiasis of stock, it is found practically wherever tsetse flies of any species exist. Some experts look upon T. rhodesiense and T. brucei, the parasite of nagana in animals, as being identical, though other authorities deny this identity. It appears that there may be mechanical transmission of these trypanosomes by other sorts of flies, but the tsetse fly plays the preponderating part in the maintenance of both human and animal trypanosomiasis in Africa; these flies are not merely passive carriers of an existing virus, but are living "culture-chambers" in which the virus multiplies indefinitely. The habits of Glossina palpalis are fairly well known and its haunts recognised, but less has been ascertained respecting G. morsitans, which, moreover, has a much wider distribution.

The Reservoirs of the Virus.

The tsetse flies live on the blood of vertebrates, and G. palpalis especially attacks man with avidity. In nature this species, partly from its association with water, has special opportunities for feeding on aquatic animals, such as hippopotamus or crocodile. In this connexion it may be remembered[2] that the late Professor Koch, while investigating sleeping sickness around the shores of the Victoria Nyanza, was led to suspect the crocodile for a time of being a reservoir of the virus owing to his finding crocodile's blood in the stomach and intestines of almost every tsetse fly he examined. Dr. G. Bouffert, the French expert, mentions that along the Bani river, a tributary of the Niger, there is a region long abandoned by the natives which continues to be a focus of sleeping sickness, this being due in his opinion to the crocodile or the hippopotamus acting as a reservoir of the T. gambiense infection. The scientific case for regarding wild animals as the reservoirs of the virus of trypanosomiasis in certain parts of Africa rests mainly on the observations of Sir David Bruce, Dr. Kinghorn, and Professor Yorke.

These observers found trypanosomes resembling T. rhodesiense in the blood of wild animals, and especially in various kinds of antelope. Many foreign investigators do not believe, however, that wild animals are reservoirs of T. rhodesiense, and among these is Dr. Taute, the German expert, who regards this trypanosome as distinct from T. brucei, and who made an unsuccessful attempt to inoculate himself with the latter organism. It is therefore not yet settled whether the wild animals which are known to be a reservoir of the disease affecting stock are in reality a danger to man in Nyasaland and Rhodesia. But while the exact relationship between human and animal trypanosomiasis cannot be said to be fully established, the committee think that the evidence indicates that game may also serve as a reservoir of the human form of the disease.

The Suggested Experiment of Game Destruction in a Localised Area.

As knowledge of this disease, its cause and its remedies, is still in the making, any hasty and imperfectly considered action of a drastic kind, such as general extermination of game, is in the opinion of the committee not justified so far by the evidence brought forward; but they recommend that until direct means of checking the fly have been discovered, the food-supply of glossinæ and the chances of infection should be lessened in the vicinity of centres of population and trade routes by the removal of wild animals; and for that purpose freedom should be granted to settlers and natives to hunt and destroy the animals within the prescribed areas, subject to certain conditions. The proposed experiment of removal of wild animals from a selected area may be instrumental in producing valuable results both as regards our knowledge of the habits of the tsetse fly, and as to the extent to which the infectivity of the fly, and subsequently the infection of man or stock, is derived from the wild animals. The committee think that there are sufficient grounds to justify an expectation of useful results, and they recommend that if a suitable locality can be found where an experiment can be carried out at a reasonable cost it should be undertaken.

Other Measures Suggested.

Meanwhile other measures should not be delayed pending the result of the above-mentioned experiment, which would necessarily take time, probably two or three years, before definite results could be obtained. These other measures include clearing of growth, especially in the neighbourhood of water and other places where the fly seeks shelter. There is a general consensus of opinion that if land in a fly country is cleared of bush it will cease to be the permanent habitation of glossinæ, though the fly may occasionally follow men or animals into cleared areas. The committee regard the question of the possibility of removing the fly from the neighbourhood of villages, settlements, or roads, by the clearing of bush, as being one of high importance. They strongly recommend that wherever practicable clearing should be undertaken, as it would tend to check the spread of the disease and render life in settlements and travel by road safe for man and stock. The extensive clearing of areas near villages would bring some material return by an increase of tillage land or additional pastures where cattle could be safely kept. Whether for tillage or pasture the cleared land would need to be enclosed by substantial fencing to prevent the intrusion of wild animals. The committee have no doubt that the settlement and cultivation of land on a considerable scale will result in the disappearance of the tsetse fly. If this fly could be eliminated or removed from contact with human settlements, sleeping sickness would practically disappear. For this reason great importance is also attached to a proper and sufficient equipment of entomological research into the bionomics of the incriminated tsetse flies, this form of research not having been sufficiently pursued in the past. Different views were taken by various witnesses as to the prospect of dealing with the fly; but some believed, and in this the committee concur, that in this form of research there is a large element of chance; that accident may at any time lay bare a secret which may lead to the solution of the problem, and that the multiplication of workers is the multiplication of these chances. It is also urged that medical research as to the treatment of trypanosomiasis and the production of immunity should be continued.

The Supplementary Memorandum.

Dr. Chapple and Mr. Duncan Millar support the view that wild animals form one of the reservoirs of trypanosomes pathogenic to man, and appear to be of opinion that the preventive aspect of the problem has not received sufficient prominence in the general report. Having regard to the havoc wrought amongst domestic stock by trypanosomiasis and to the obstacle thereby placed in the way of settlement and of the opening up of trades routes in all regions where game and fly are found, they think that on this score alone there is urgent need for immediate preventive operations. The presence of game and fly in all areas inhabited by whites and natives carries with it the dangers of infection of man. They therefore advise that in addition to the clearing measures urged in the main report further means should be taken for the destruction or driving off of wild animals in the vicinity of settlements within prescribed limits; that complete freedom should be afforded to all whites and natives to hunt, drive back, or destroy game; and that the operation of the game laws should be altogether suspended within such limits. The opinion is also expressed that no game reserves should be formed in fly-infested areas where there is any native population or in their immediate vicinity. While recommending these measures, they are opposed to any scheme for the general destruction of game outside prescribed areas.

[2] See THE LANCET, Oct. 30th, 1909, p. 1292.

THE LANCET.

LONDON: SATURDAY, MAY 30, 1914.

Cancer Houses.

IN an address delivered by Sir THOMAS OLIVER before the Insurance Institute at Newcastle-on-Tyne, and printed recently in THE LANCET, certain passages occurred dealing with the subject of alleged "cancer houses" which caught the lay imagination at once. Considerable prominence was given to Sir THOMAS OLIVER'S observations by the *Times* in an article which quoted extracts from our columns, and was interpreted, we believe, as an invitation for correspondence on a subject which has always interested deeply the public, especially that section of it which delights to be made to shiver. It may be well to premise these remarks, therefore, by saying that recent scientific inquiry has made available no evidence approaching to satisfactory proof as to the existence of this alleged phase of a cancer infectivity. It is clearly a phase proof of the existence of which must be accompanied or preceded by evidence of a more general dissemination of the disease by infection. At present the position would seem to be summarised by two sentences in Sir THOMAS OLIVER'S own address: "The subject of cancer houses has periodically attracted attention. ..... Many medical men are of opinion that cancer germs lurk in houses"; though here we should like to point out that though many individual medical men may have expressed some belief of the sort, the proportion of medical men holding the view is small. The opinions of medical men upon such a subject are entitled to all respect, so long as the data upon which they are founded can be shown either to be facts observed by themselves or statements so thoroughly inquired into, if they are in the nature of hearsay, that they seem to be beyond reasonable question. Such data can be compared with others from equally trustworthy sources. The whole subject of cancer, however, owing to the position which it occupies in the public mind, is so prolific in rumours and stories founded upon inaccurate lay observation that inquiries which seem sufficient to one inexperienced in the necessary precautions of research may only serve to mislead, and the disease is in itself one in which the room for error, even when the observer is a medical man of some experience, has to be taken into account. There has been a recent illustration of lay credulity in the case of the infamous quack, DELVINE, who has been sent to prison upon his own plea of guilty for obtaining money by false pretences from persons to whom he used to display fragments of offal purchased from butchers as cancerous growths removed from their bodies by his agency. DELVINE may have roused the indignation of some of his victims throughout the country, who felt that they had been robbed, but his counsel before he was sentenced stated that he had eight people present in court who would have been ready to testify on oath that the prisoner had cured them of cancer if he had chosen to face the evidence against him and submit his case to a jury. This example of willingness to be duped may be extraordinary, but between it and the statements of witnesses which will stand close scientific investigation there are many degrees of self-deception, of prejudice, and of lack of accuracy, not confined to the classes from which DELVINE'S victims were drawn, and medical men, like others, may be deceived in making inquiries of a kind outside the scope of their daily routine.

In view of the prominence that is now being given to supposed retention by certain dwellings of a special cancer virus, we would ask our readers to consider the whole matter from the point of view of evidence. Those who allege that "cancer houses" exist have the onus laid upon them of proving that certain successive cases of cancer proved to have occurred in certain houses have been due to the persons affected becoming tenants of those houses and to no other cause. The facts established must lead us to the conclusion that infection preserved in the houses has been responsible and our reason must be compelled to arrive at such a verdict. The facts must point directly to the responsibility of the building in which the patients lived, and not merely be consistent with an infected building. A man is not tried and sent to prison upon the proof of facts which are merely consistent with his guilt, except upon the stage—at least, when such a thing does occur in real life a haunting sense of possible judicial error remains. Conviction before the tribunal of public opinion is liable to be obtained by looser and easier methods than before a court jealous to observe and trained to apply the laws of scientific evidence. The difficulty is to obtain a series of houses in which the requisite series of cases of cancer can be found to have occurred, and to eliminate from those cases the possibility of their having been due as much to hereditary tendencies, which in the sifting of evidence cannot be ruled out, or to industries causing a predisposition to cancer, or to other influences. That successive cases of cancer should appear in a single house or in a group of houses is not in itself surprising, for it is not a rare disease, population has increased, and there are crowded areas and houses in which many persons will be found who are of the age with which the development of cancer is associated, so that the element of coincidence is not easy to eliminate. Unfortunately, the romantic mind never will try to eliminate it; the romantic mind revels in the trouble caused by coincidence.

Meanwhile, experiment tends to discredit rather than to confirm the existence of cancer houses, just as the sifting of the evidence connected with individual buildings brings about in many instances

a similar result. In the article in the *Times*, to which we have already referred, there was a description of results said to have been observed with regard to mice confined in a cage the inmates of which were stated to have developed cancer with a frequency pointing to infection. We believe the observation has been recorded on several separate occasions. If this had actually occurred owing to the infection of the cage by diseased mice, further experiments should long ago have proved up to the hilt the existence of "cancer houses" so far as mice are concerned. But neither the experiments made under the auspices of the Cancer Research Fund, nor those of Professor EHRLICH, have shown anything of the kind. Mice have been so bred from cancerous parents that a strain has been produced in which cancer is more frequent than in families of mice in which no attempt has been made to concentrate the hereditary factor. This confirms the view that a hereditary factor may coöperate in the causation of cancer, and may be responsible for the ill-fame of some alleged cancer houses. Mice, however, have been confined in cages in which they had every opportunity to develop cancer by infection from their companions or from their cages without any apparent increase in their liability to the disease. The result, in short, has been the same as if the cages had been beyond suspicion of infection, and experiments deliberately planned and carried out must be regarded as conclusive in comparison with isolated phenomena into which an element due to chance or some unknown factor may have entered. In the present condition of things it is not likely that unanimity will be obtained or that all will accept the views of those responsible for the investigations of the Imperial Cancer Research Fund, who, however, are known not to leave any clue uninvestigated which examination may show to be worth following up. Unanimity, even upon such a question as that of the alleged general increase of cancer, is not at present attainable. Scientific investigation and proof should always precede statements which are liable to alarm the public unnecessarily. Among these we would include allegations of the existence of "cancer houses." They have not yet been proved to exist, and there is no such weight even of opinion in favour of their existence as would warrant alarming the large number of people who now live securely in houses in which deaths from cancer have taken place.

Subarachnoid Medication for Cerebro-spinal Syphilis.

ONLY a few years have passed since first it was proposed to inject drugs into the subarachnoid space. It was in 1891 that QUINCKE introduced lumbar puncture, and this was the starting point of all the diagnostic and therapeutic work which has been carried out on the cerebro-spinal fluid. For diagnostic purposes lumbar puncture has proved of great value, but therapeutically the removal of a certain amount of cerebro-spinal fluid has been shown to do little good, and indeed when performed for decompression in cases of cerebral tumour the procedure has not rarely been followed by sudden death. Again, the channel of the cerebro-spinal fluid is widely used for the production of anæsthesia of the lower half of the body. This was first employed by CORNING in 1885 and later by BIER, and the practice has been found to possess a distinct though somewhat limited field of usefulness. But the more ambitious attempt of JONNESCO, of Bucharest, to employ the same method for anæsthesia of nearly the whole body by injecting the anæsthetic substance high in the cervical region has met with little favour, at least in this country. Subthecal medication has also been used in the treatment of tetanus, and a certain number of recoveries have followed this procedure; but it is somewhat doubtful whether any of the recoveries were to be attributed to the use of the antitoxin, for in any group of cases of tetanus a certain number will recover, and it did not appear that the percentage of recoveries was greater with this method than with others.

The latest example of the employment of the subarachnoid space for the administration of a remedy has been in the treatment of cerebro-spinal syphilis. It had long been recognised that locomotor ataxia and general paralysis of the insane were somehow connected with syphilis, and although some observers were of opinion that they were the direct result of the disease, it has only been since the spirochæte has been demonstrated in the brain and spinal cord that the correctness of this view could be regarded as proved. The fact that anti-syphilitic remedies administered in the ordinary ways had little or no effect on tabes and general paralysis naturally lent much support to those who maintained that these diseases were not syphilitic in nature. Yet the spirochæte has now been seen in the brain and spinal cord; there can therefore be but one explanation of the failure of remedial agents, and that is that the remedy does not pass through into the true substance of the central nervous system. This also holds good in the case of the recent additions to our antisyphilitic armamentarium, salvarsan and neosalvarsan, for at no time after an injection, whether intramuscular or intravenous, can any arsenic be found in the cerebro-spinal fluid. In this connexion we may notice a very important distinction which has been drawn by MCINTOSH between two classes of syphilitic lesions of the brain and spinal cord; he divides them into the "interstitial," in which the meninges, the blood-vessels, and the neuroglia are affected primarily, the neurons only being damaged mechanically, and the "parenchymatous," in which the neurons themselves are first attacked. The distinction is important, for while the interstitial lesions may be benefited by remedies introduced into the blood stream, the parenchymatous are not amenable, since the neurons are

surrounded by lymph-spaces which are in connexion with the cerebro-spinal fluid, and this, as we have remarked, does not contain chemical substances introduced into the blood stream. The conclusion, therefore, seems to be obvious that if we desire to influence the spirochætes in the parenchyma of the central nervous system we must introduce the remedy directly into the cerebro-spinal fluid; and in the present issue of THE LANCET we publish three papers of no little importance which deal with work in this direction.

NIERENSTEIN, it will be remembered, succeeded in showing that arsenical compounds had no effect on trypanosomes *in vitro*, although the organisms died if some protein were added. It follows from this that the protein forms a compound with the arsenic, and that this compound acts upon the trypanosomes, killing them; and the same is true also of salvarsan and the spirochæte of syphilis. It appears, therefore, to be necessary to combine the salvarsan with a protein before injecting it into the cerebro-spinal fluid, and Dr. GORDON W. SPENCER'S paper deals with cases in which salvarsanised serum has been injected into the subarachnoid space. The salvarsan is first injected intravenously into the patient, and after an interval some blood is withdrawn; the serum is then separated and is injected through a needle by which an equal quantity of cerebro-spinal fluid has just previously been withdrawn by lumbar puncture. Dr. SPENCER has worked out the details of the technique, but necessarily some of the points may be modified as time goes on, such as the period after the intravenous injection when the blood is best withdrawn and the most suitable quantity to employ. These, however, are small points, and the paper is of value, for it contains particulars of 12 cases in which this mode of treatment has been made use of. Seven of the patients suffered from tabes, and five from sclerosis and interstitial cord lesions. The results varied, but in the majority of the cases there was more or less improvement, and in no case did any perceptible harm follow the injection.

Mr. C. A. BALLANCE and Dr. HARRY CAMPBELL deal in their instructive papers with the treatment of intracerebral parenchymatous syphilis. The foundation of the work which they have done is the fact that it is apparently impossible by introducing a drug into the spinal portion of the subarachnoid space to influence the brain above the tentorium cerebelli, for the cerebro-spinal fluid below this does not pass upwards, the stream being in the opposite direction. Mr. BALLANCE has introduced the remedial agent directly into the lateral ventricle, so that the drug is carried with the stream over the surface of the brain and into all its lymph spaces. As to the results, it may be said that they were encouraging, but it is too early to form any definite conclusions. The authors quote previous attempts which have been made in the same direction, yet their own papers mark a very distinct advance in the therapy of some forms of cerebral syphilis. We have now a means of attacking the disease even in fastnesses where it has hitherto been safe from our efforts at destruction. Doubtless time will show the modifications which the method may need, and will also tell how far success may be counted upon; but enough has already been done to justify us in thinking that a real advance in the treatment of syphilis has been recorded.

Annotations.

"Ne quid nimis."

THE TREATMENT OF INFANTILE PARALYSIS.

THE recent advances in our knowledge of the nature of the infecting agent in infantile paralysis have perhaps tended to divert attention from the almost equally important steps which have been taken to improve the treatment of this affection, which we now know to be, after tuberculosis, the most important cause of crippling deformities. Mr. Robert Jones's oration before the Medical Society of London (which will be found at p. 1515 of our present issue) comes not only, as he himself states, from one whose "life has been devoted to the more practical and clinical aspect of surgery," but also from one whose teaching of simple principles has done much to advance the treatment of infantile paralysis. In the past the functions of the neurologist and of the orthopædic surgeon have been too far divorced from each other. The principle of the treatment of paralysed muscles by the relaxation of tension, one of the legacies to Mr. Jones from his predecessor, Mr. H. O. Thomas, has brought the two together. Rest in the early stages of the disease no longer means simple rest in bed, but fixation upon a splint in a carefully thought out position, so that the limb may be completely rested, the paralysed muscles relieved from tension, and contractures prevented. When once this principle has secured general acceptance and is universally applied, half the work of the orthopædic surgeon, that involving the correction of deformity, will have gone. It is very doubtful whether it is possible at the present time to differentiate in the early stages of infantile paralysis between those muscles which are irreparably damaged and those which will probably recover their power. The electrical reactions give no certain guide; muscles which exhibit the reaction of degeneration or which even fail to react at all to electric stimulation have been seen to recover. It is as well that, therefore, all paralysed muscles should be treated as if they might regain their power. Mr. Jones would not abandon hope unless there is no sign of return of muscular action after 12 months' "appropriate treatment." By this he means treatment including the support of the affected muscles by a splint, so that they are never placed upon the stretch. To this he gives the first place in treatment; all other methods are subsidiary, and must be carried out in such a way as not to interfere with efficient splinting. Electrical treatment in particular is now given its proper value; its effect is nutritional only. Massage serves the same purpose, perhaps more effectually, for it can be applied gently and with accuracy to definite muscles or muscle groups. Exercises are important in proportion as the muscles are able

to carry them out. Attempts to obtain full active movements of the joints whilst the muscles are still too weak to act against the resistance of weight are, however, worse than useless; they not only fail to exercise the muscles, but by stretching them delay recovery. Mr. Jones has rightly achieved a reputation as a pioneer of operative methods in the treatment of infantile paralysis, but it may be predicted that in the future he will be remembered rather for his insistence upon this principle of rest and relaxation of paralysed muscles than for the work he has done to improve the methods and results of such operations as arthrodesis and tendon transplantation. These operations have their use, the former in flail limbs, the latter in paralyses of limited distribution, but they must be reserved until after conservative treatment has been given its trial. There can be no doubt that they have been too widely used. Tendon transplantation is worthless unless the tendon can be securely fixed with a suitable degree of tension, made to work in a good line, and given a reasonable chance of carrying out a useful function in its new position. Arthrodesis and similar operations have an even more limited field. It is interesting to find that Mr. Jones now practically confines this operation to the ankle and shoulder. The subject of nerve transplantation for paralysis is a fascinating one. Up to the present little success has been obtained by workers in this field, although much has been added to our knowledge. In particular Stöffel's investigations into the minute anatomy of nerve trunks, where he is able to recognise the bundles which supply individual muscles, seem to lead on to more accurate methods of nerve crossing. Yet when we remember the comparative uncertainty of suture of a healthy nerve immediately after section, and the fact that in a paralysed limb we are faced with the additional feature of prolonged disuse, the prospects of obtaining a sufficient regeneration of a transplanted nerve to enable the paralysed muscle to become functionally active must be remote. There is still another difficulty, the number of functionally active neurons in the paralysed limb is small; in attempting to transfer some of these to the paralysed muscle we must abstract them from a functionally active muscle. So that the operation is at best a mutilating one, and until we can be sure that there is a reasonable prospect of regeneration of the nerve and of a restoration of function in the muscle it can scarcely be considered a surgical procedure. Still further experiments, particularly upon muscles which have been long disused, are required.

THE HISTORICAL MEDICAL MUSEUM.

A FEW weeks ago we announced that the Historical Medical Museum founded last year by Mr. H. S. Wellcome in connexion with the International Medical Congress would shortly be reopened at 54A, Wigmore-street, London, W., as a permanent institution. During the past six or seven months considerable additions have been made to the collection, and the exhibits have been rearranged and classified under the supervision of the curator, Mr. C. J. S. Thompson. Among the recently acquired objects of interest are a case of chemical reagents and apparatus used by Lister in his early experimental days, and the 12 interesting oil paintings of anatomical subjects attributed to Jacques Gautier D'Agoty, which were described in THE LANCET of Feb. 21st last, p. 557. These latter were purchased only a few weeks ago for the museum; they have been carefully relined and restored, and are well worth a visit. The museum, which was reopened informally on Thursday of this week, has a definite educational value. That it is an object of abiding pleasure and instruction to all students of the historical and archæological aspects of the art of medicine scarcely needs further emphasis in these columns. It will be open daily from 10 A.M. to 6 P.M., closing at 1 P.M. on Saturdays. Members of the medical and kindred professions will be admitted on presenting their visiting cards. Tickets of admission may also be obtained by others interested in the subject on application to the curator together with an introduction from a registered medical practitioner. Ladies will be admitted only if accompanied by a medical practitioner.

THE ESSENTIAL FEATURES OF ACIDOSIS.

SOME new researches into acidosis, together with a review of the whole subject, are contributed to the *Johns Hopkins Hospital Bulletin* for May by Dr. A. W. Sellards. His conclusions are confidently expressed as follows. The essential feature in acidosis consists in a general impoverishment of the body in bases or in substances which readily give rise to bases—e.g., sodium carbonate. This may occur through the loss of bases as such (relative acidosis) or by the neutralisation by acids (absolute acidosis). In either case the end result is the same, and the distinction between relative and absolute acidosis is misleading. In every acidosis there is an increase in the tolerance of the body to fixed bases, a diminution in the titratable alkalinity of the blood serum, and a diminution in the carbon dioxide of the blood. The excretion of ammonia either in its relative or absolute amounts does not afford a definite basis for the detection of acidosis; indeed, ammonia excretion may be normal in acidosis, especially in diabetic cases. In cases of nephritis with diminished ammonia in the urine it is probable that there is no increase in the quantity of ammonia in the blood. This view, we may note, is contrary to the teaching of many authorities in this country. An acidosis of high degree occurs in certain nephropathies; it reaches a maximum in the uræmia of acute and chronic diffuse nephritis. It is not a terminal event, for it is frequently present in a high degree months before uræmia develops. In this type of acidosis there is a normal excretion of ammonia and an absence of disturbance of carbohydrate or fat metabolism and an absence of the salts of any abnormal organic acids. The changes in the titratable alkalinity of the blood which can be detected by phenolphthalein afford a ready means for the prompt diagnosis of acidosis, and the method is particularly applicable in renal disease. In this condition it furnishes a definite indication of the amount of bicarbonate that will be required for the relief of the acidosis. The determination of the tolerance of the body to sodium bicarbonate also affords a delicate method of general application for the detection of acidosis. Even when massive doses of this salt have been given there is no excretion of it in the fæces. Some of the toxic symptoms of uræmia are due, not to the presence of a toxin, but to the absence of a normal constituent of the blood—namely, carbonates. Therefore, to bleed in order to remove toxins from the circulation causes a still further

diminution in a substance of which the blood is already seriously depleted. This disadvantage can be obviated by injecting bicarbonate solution at the time of bleeding. In the selection of carbonates for therapy the bicarbonate meets the essential requirements; the use of sodium carbonate is unnecessary and inadvisable.

THE HARDSHIPS OF HARD WATER.

THERE can be little doubt that a soft water drinking supply, apart from the question of whether hard water is injurious to health, is invariably appreciated, and yet nowhere is really soft water supplied in the immediate metropolitan area. The hardness of the metropolitan water-supply varies, of course, according to its source. The water drawn from the rivers is hard, but nothing like so hard as the water drawn from the chalk wells in Kent. It is true that for organic purity the water supplied from the chalk wells surpasses that drawn from the rivers, although now that storage and filtration are the rule the latter water maintains a remarkable and desirable standard of purity. The public, however, who enjoy the privilege of a water-supply showing the very high degree of purity of that drawn from the chalk wells of Kent labour under the great disadvantage which it presents through being extremely hard. Their share of the water rates is increased by the expense of having to employ the plumber at short intervals to remove the calcareous deposit which rapidly accumulates in the pipes and boilers of the hot water service. Pipes of two-inch diameter quickly have their calibre reduced to half an inch or less, and old pipes are frequently taken out with a free way not much larger than would admit a penholder. The economic loss is of course considerable, and this "furring" is attended with some danger owing to the pipes being liable to be choked up altogether. It does not seem reasonable that this real trouble and nuisance should be inflicted upon one section of the community which is part of the same administrative system supplying comparatively soft water to other districts. Further, the comparatively soft water-supplies drawn from the river sources have to go through expensive processes of storage and filtration before they are sent to the consumer. The hard chalk supplies of the Kent wells go through no such process, and therefore are most probably delivered at a much lower distributing cost. Surely, therefore, it is not asking too much that these excessively hard water-supplies should be softened by well-known processes before they are pumped through the main services, thus removing a real reproach to the water as it is at present supplied. It is fortunate for the people of Southend in Essex that there are in their case natural processes at work which automatically soften the water before it reaches the pumps. Here apparently, as shown in an article which we publish this week, the initial subterranean chalk water contains some infiltrated sea water, but in its passage through Thanet sand the calcium and magnesium salts are replaced by sodium salts, and so the Southend water-supply is not only very soft and free from chalk, but contains an appreciable amount of alkaline salts. This state of things will be envied by the inhabitants of Kent, who find their own water-supply a daily inconvenience and nuisance on account of its excessive hardness. Finally, it should be remembered that whether it is a natural or artificial softening process the resulting water attains a higher degree of purity than ever. We think that a strong appeal might be made to relieve the districts served with excessively hard water from the hardships which its use entails in many directions.

THE APPLICATION OF ABDERHALDEN'S REACTION TO THE STUDY OF NERVOUS AND MENTAL DISEASE.[1]

IT is well known that before any alimentary substance can reach the cells of the organism it must pass the intestinal mucosa, where it undergoes considerable modification. Proteins, for instance, are decomposed by intestinal ferments, and subsequently undergo a synthesis into proteins differing from those in the food substances as introduced, but analogous to those circulating in the blood plasma. In this way the tissues never come in contact with substances foreign to the particular animal species concerned. The tissue cells of the body are supplied with ferments rendering them capable of assimilating the albuminoids, carbohydrates, and other foodstuffs contained in the plasma. The question then arises whether the plasma might not acquire fresh properties if foreign substances are introduced into the body avoiding the alimentary canal. Abderhalden has shown that it is so, and that the organism can produce new ferments in response, for instance, to the injection of certain sugars, such as saccharose, lactose, or of such substances as the nucleins and nucleic acids. The exact origin of these defence-ferments ("abwehrfermente") is still obscure. From this discovery Abderhalden was led to suppose that in pregnancy new ferments might be discovered existing in the blood as a defence-reaction to the albumin of the placenta, and it now seems thoroughly established that this is the case, and that from about the eighth day after fecundation to some 14 or 20 days after the expulsion of the placenta these specific ferments are present and their presence can be demonstrated as a specific test for pregnancy. Whether the ferments of Abderhalden are or are not identical with, or analogous to, antibodies is a matter for further investigation. But the applicability of the method of Abderhalden to other conditions may soon become of paramount importance. Already considerable progress has been made in connexion with its application to the problems of nervous and mental disease by German and French investigators. All agree that normal serums never contain defence-ferments directed against the albumin of the brain or any other organ. Now in dementia præcox it has already been shown by a number of observers that the blood contains ferments to counteract the albumin of the sexual glands; the serum of female cases of the disease acts on proteins of ovarian origin and is inert in reference to proteins from the testis, while the converse is the case in male patients. Further, similar reactions have been found in dementia præcox in regard both to the thyroid and the cerebral cortex, while analogous investigations have been made in such diseases as epilepsy, general paralysis, exophthalmic goitre, paralysis agitans, and in organic and functional psychoses, and interesting results are being obtained. It is true, of course, that we are

[1] See a paper by Dr. S. Mutermilch, of the Pasteur Institute, Paris, in the Archives de Neurologie for April.

merely at the beginning of investigation along these new lines, but the data already recorded suggest that from this new sero-reaction appreciable benefits will accrue as far as the etiology, diagnosis, and treatment of certain nervous and mental diseases are concerned.

THE INVESTIGATION OF OZÆNA.

THE International Collective Investigation of Ozæna, which originated at the Rhino-Laryngological Congress in Berlin in 1911, has suffered by the death of Professor Grabower early this year a serious loss. But the investigation is being steadily pursued, and a fresh impetus has been given to it by the unearthing of the fifteen years old researches of Dr. Fernando Perez, of Buenos Aires. This writer described in the *Annales de l'Institut Pasteur* in December, 1899, a small polymorphous Gram-negative immobile rod as the exciting cause of ozæna; he named it the coccobacillus fœtidus ozænæ, but his communications received no attention. In the *Journal of Laryngology, Rhinology, and Otology* Dr. A. Brown Kelly describes the long-deferred recognition of these researches and the further problems which they suggest for consideration. The Berlin committee, it appears, last year invited Dr. Perez to submit his views to the Institute of Sero-Therapeutics in the University of Vienna, where they were completely confirmed. The organism which Dr. Perez believes to be the specific cause of ozæna is only one out of 11 which he has found in the nose in cases of that disease: the others are all well-known members of the nasal flora. It stains with aniline dyes, but is Gram-negative. On the usual media it grows well at body temperature; it does not liquefy gelatin, never curdles milk, and produces ammoniacal fermentation of urine. All cultures of this coccobacillus give off a characteristic odour exactly similar to that of ozæna itself. Inoculation of ½ c.c. of a bouillon culture into the circulation of a rabbit leads to death in 24 hours; the outstanding post-mortem change is inflammation of the nasal mucous membranes, whence the organism can be recovered. If the animal recovers from inoculation it suffers from a chronic nasal discharge, in which the organism is again found; in time atrophy of the anterior turbinal develops. Dogs also can be infected with the cocco-bacillus, and indeed it occurs normally in the dog's nose, increasing in those which have distemper. It is not found in the nasal cavities of other domestic animals; the dog alone, and particularly the diseased dog, can transmit it. This discovery raises very important questions as to the method of infection. Dr. Perez shows that in many cases it exists in more than one member of the same family, and is therefore probably contagious; but when a solitary case occurs the possibility of canine infection has to be thought of. These results have been confirmed and extended by Hofer[1] and Kofler,[2] who have used vaccines of the organism therapeutically with marked success. Sufficient time has not yet elapsed to show whether the improvement amounts to permanent cure, but optimistic accounts are given. The collective investigation is so much impressed by these results that further researches are being carried on under its auspices in Berlin, Vienna, Budapest, Prague, Königsberg, Posen, Christiania, Turin, and Glasgow. At the Hamburg Congress to be held in 1915 a review will be presented of all the reports received from the different countries in which the investigations have been carried on; this and everything bearing on the subject will be published in a special volume. Intimation of papers, mentioning subject and length, are asked for by the Berlin committee by July 1st next; and papers themselves (as far as Great Britain and the Colonies are concerned) should be in the hands of Dr. Brown Kelly, of Glasgow, not later than Dec. 1st next.

[1] Berliner Klinische Wochenschrift, No. 52, 1913.
[2] Wiener Klinische Wochenschrift, No. 42, 1913.

AN EARLY MEDICAL REVIEW.

IN an annotation on "One of our Predecessors," published on Nov. 3rd, 1906, we drew attention to the fact that as long ago as June 17th, 1684, a single number of what is perhaps the earliest instance of an English medical periodical was issued under the title of "Medicina Curiosa, or a Variety of New Communications in Physick." Subsequent research has failed to discover any purely medical English predecessor to this journal, for the "Zodiacus Medico-Gallicus"[1] was a Genevese periodical. But both the "Zodiacus" and the "Medicina" were preceded by publications, not specifically medical, which still dealt largely with medicine. Thus perhaps the earliest scientific review to make its appearance in England was the "Weekly Memorials for the Ingenious: or An Account of Books, with other Curious Novelties." It appeared as early as Jan. 23rd, 1681, and was issued every "Munday" by Faithorne and Kersey at the Rose in St. Paul's Churchyard, being reprinted as a volume in 1683 with a dedication to the Hon. Robert Boyle, the popular man of science of the period. Unlike modern critical journals it was uniformly complimentary in tone, and aimed only at giving a clear account of books of interest to the learned or the curious. Doubtless, its inspiration was drawn from the "Zodiacus Medico-Gallicus," published by Nicolas de Blegny, of which it gave some account in its fourth number, Feb. 6th, 1681. It is only in a sense correct, however, to regard the "Zodiacus" as the pioneer of all medical journals, for its publication dates only from 1679, and it seems to have been suggested to the ingenious de Blegny by our own "Philosophical Transactions," first appearing in 1665, and by the "Journal des Scavans" of the same date, as well as by the "Miscellanea Medico-Physica" (1670) and "Acta Eruditorum" (1682), both of Leipsic, and the "Acta Medica et Philosophica" of Copenhagen (1671). All these early learned periodicals reviewed medicine, but the "Weekly Memorials" are almost exclusively devoted to it, and supply much information, which, though quaint, is manifestly put forward in the best interests of science. Thus of Peyer we read that "the anatomical knowledge of the stomach and guts, gives so great an insight into the natures and operations of aliments, medicines, and several diseases, that this curious and industrious anatomist has been encouraged thereby to bestow much time, and pains in the search and discovery of those parts," but in view of the previous labours of Willis and of Wepfer, he has specialised in the "glandules." Two reviews are devoted to a description of the patches named after him. In a review of the Comparative Anatomy of Gerard Blasius the great importance of the dissection

[1] See THE LANCET, Nov. 30th, 1907, p. 1552.

of animals is insisted upon as leading to a knowledge of the human body. Finally, immense calculi are described, and marvellous stories of drugs and their action, accidents, cures, and so forth, are recounted for the delectation of a credulous if intelligent generation.

A NEW PREPARALYTIC SYMPTOM IN ACUTE POLIOMYELITIS.

WITH the fuller knowledge that has been gained of acute poliomyelitis, and with the possibility now before us of inoculating protective cultures for this condition, any sign which is clinically recognisable as premonitory has a warning value of especial importance; and more especially is this the case since it has not been proved up to now that such an inoculation, when once the disease is definitely present, has any effect in either limiting the extent of the paralysis or checking the subjective associated symptoms. Only in the preparalytic stage can benefit from such inoculations be anticipated. Dr. John Colliver, during a recent epidemic of infantile paralysis in Los Angeles, in which a hundred cases occurred, states in the *Journal of the American Medical Association* (1913, vol. lx., p. 813) that in 16 cases he was able to observe certain signs which were definitely premonitory of severer attacks. Such signs were in the nature of a tremor or convulsion of certain groups of muscles; the movements last from a few seconds to less than a minute; usually they affect a part or the whole of one or more limbs. At the commencement such movements are easily missed, but later they last longer and occur at shorter intervals. The movement is associated with a cry which resembles that of the hydrocephalic. Occasionally lapses of consciousness occur which may not be associated with movements. Further observations of this nature, if confirmatory, may enable an early diagnosis to be made, and with the improved methods of treatment, especially of a prophylactic character, a notable lessening of poliomyelitis may be hoped for.

THE PHARMACEUTICAL SOCIETY.

THE Pharmaceutical Society at the end of 73 years of existence finds itself in a more flourishing condition than it has ever been. The report of the council which was presented at the annual meeting last week shows that during the year considerable progress was made in all departments and that a numerical strength of about 8000 has been reached. This on a register of 16,000 pharmacists may be regarded as satisfactory, since it is probable that between 5000 and 6000 of the qualified chemists who are not members of the society are acting in the capacity of assistants, or at any rate are not in business on their own account. To a large extent the increased activity in pharmaceutical circles is due directly or indirectly to the National Insurance Act, which has impressed upon pharmacists the need for greater vigilance and a lively interest in the developments of national health insurance. In nearly every part of the country local organisation has been raised to a high pitch of efficiency, and about 60 new local associations have been formed. A few years' experience of the value of direct representation of pharmacy in the House of Commons has convinced the council of the need for ensuring that such representation should be as far as possible permanent, and accordingly a Pharmaceutical Parliamentary Fund was established during the year to be utilised for the purpose of maintaining the present representation, and if possible increasing it. In the domain of education the only noteworthy development of recent date was the dropping of Latin from the compulsory part of the preliminary examination. This step was taken after mature consideration and no doubt regretfully, but the report shows that the decision was justified, for almost immediately the change had been made there was a large increase in the number of persons applying for registration as students. When Latin was a compulsory requirement at the first examination it was found that owing to the decrease in the number of secondary schools in which Latin was taught a large number of eligible persons who had not contemplated entering pharmacy while at school had not taken Latin, with the result that possible recruits to the ranks of pharmacy went into other callings. A knowledge of Latin is still required for the qualifying examination so far as it relates to the translation and interpretation of prescriptions. On the whole the report seems to convey the impression that the prospects of pharmacy are much brighter than they were a few years ago.

APPENDICITIS AND LEAD POISONING DUE TO INGESTION OF SHOT.

AMONG the foreign bodies which have been found in the appendix are shot. In the *Journal of the American Medical Association* of April 25th Dr. F. W. Hitchings and Dr. H. G. Sloan have recorded a case which is remarkable in several respects. A single woman, aged 21 years, was seen at midnight on Jan. 3rd, 1914. She said that 48 hours previously she had four teeth extracted under nitrous oxide anæsthesia. Twenty-four hours later she had a chill with vomiting which persisted almost until she was seen. She complained of severe pain all over the abdomen with occasional paroxysms. On examination the abdomen was generally tender, slightly more so over the appendix than elsewhere. The pulse was 74 and the temperature 98·9° F. On questioning the patient the following history was obtained. About Christmas, 1912, a number of cases of an eruption termed "Cuban itch" occurred in the town in which the patient lived. She contracted it and was treated without effect by several practitioners. A friend advised her that bird-shot was a "sure cure," and she took from 15 to 20 small bird-shot every morning until she had ingested about half a pound in all. The eruption disappeared, but some time later symptoms of lead poisoning—headache, colic, blue line on the gums, and digestive disturbances—appeared. In July, 1913, she suffered from severe convulsions, which almost proved fatal. They lasted a week and recurred at intervals until September. After this she had almost constant attacks of colic, nausea, vomiting. In spite of this experience she began to take shot again in November for a new kind of eruption on the face. This time she chose large shot. The dose was five or six every morning until a tablespoonful was taken. She asserted that she passed all she took. On Jan. 4th, 1914, the abdominal tenderness had increased and was great over the appendix. The pulse was 100 and the temperature was 99·3°. Acute appendicitis was diagnosed. A long median incision was made and the appendix was found to be inflamed, particularly at the tip, and heavy. It weighed 125 grains and contained eight shot. About

a week after the operation 40 shot were passed per rectum and were much eroded. The urine contained a trace of albumin and a few hyaline and granular casts. The abdomen was radiographed but no more shot could be seen.

THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY.

WHEN reviewing the eighteenth volume of the second series of the Index Catalogue of the Library of the Surgeon-General's Office, United States Army,[1] we took occasion to state that the assiduous and patient labour of the army medical officers who produce that storehouse of remarkably accurate bibliographical, antiquarian, medico-historical, scientific, and professional lore—for by its arrangement and methods it is much more than a mere inventory of books—lays all medical scholars under a debt of gratitude to the Government of the United States. It is with something like dismay, therefore, that we learn through the protests now appearing in the American medical press that it is proposed this year to deprive this great library (which owes its world-wide eminence to the organising capacities and indefatigable energy of the late Dr. John Billings) of its independent status, and to transfer it to the library of Congress, constituting it a subordinate department thereof. Whatever may be the non-medical advantages expected to accrue from such a course, we fear that its results would be most regrettable for medical literature throughout the world. We cordially sympathise, therefore, with the protests of our American contemporaries, and trust that wiser counsels even yet may prevail.

THE PASTEURISATION OF MILK IN NEW YORK.

Dr. W. H. Guilfoy, Registrar of Records in the Department of Health, New York City, has recently compiled from the official statistics of his department a table of the mortality rate of children under 5 years of age in the boroughs of Manhattan and the Bronx, formerly the "Old City," one of the most insanitary districts in New York. In the year 1891, before the first Nathan Straus's pasteurised milk station was opened, the death-rate of children under 5 years of age was 96 per 1000. Within five years the corresponding mortality rate was reduced from 96 to 69; in another five years to 60, and in the next quinquennial period to 55. Last year the death-rate was reduced to the satisfactory level of 37. The fall in the death-rate of children under 5 years of age shows still more satisfactory results when the statistics for the fatal months of June, July, and August are taken separately. During these months before the year of introduction of pasteurised milk the mortality from epidemic diarrhœa was very high. In 1891 the rate was as high as 125 per 1000 per annum; in 1913, 22 years after the introduction of pasteurised milk, it fell to 38—truly a remarkable result. It naturally cannot be claimed that this gratifying improvement is exclusively due to the pasteurising of the milk, for many simultaneous and important improvements in sanitation and mothercraft generally have been introduced during this period. But it does seem to point to the fact that pasteurisation of milk is not incompatible with a low death-rate among young children as well as among infants. These statistics are on a large scale and at any rate should receive consideration from those enthusiasts for raw milk who maintain that the cooking of milk, not only has an injurious influence on the nutrition of infants under one year, but that it also has far-reaching influence in the same direction during the succeeding years of life.

[1] THE LANCET, May 9th, 1914, p. 1331.

THREE former students of King's College Hospital hold at the present moment the important posts of Director-General Navy Medical Department (Surgeon-General Arthur W. May, C.B.), Director-General Army Medical Service (Surgeon-General Sir Arthur T. Sloggett, C.B.), and Medical Inspector H.M. Prisons (Sir Herbert Smalley, M.D.). It is proposed to commemorate this unique occasion by entertaining them at dinner on Tuesday, June 16th, at the Waldorf Hotel. Viscount Hambleden, chairman of the committee of management of King's College Hospital, will take the chair at 7.30 P.M.

Mr. Thomas H. Kellock, surgeon to the Middlesex Hospital, has announced his intention of standing as a candidate for the Council of the Royal College of Surgeons of England. Mr. Clement Lucas's resignation from the Council, which was noted in our columns last week, brings the number of vacancies to be filled in July next up to five, while the candidates now number 12.

THE library and offices of the Royal Society of Medicine will be closed for the Whitsuntide holidays from to-day Saturday, May 30th, to Tuesday, June 2nd, both days inclusive.

ST. LUKE'S HOSPITAL, PEKING.—Mr. Charles S. Rivington states in his report for 1913 that this hospital, which hitherto has been closed for some weeks during the New Year season, was open during the whole year. The work done shows a general increase. There were 162 in-patients, 5720 out-patients, and 149 operations with three deaths. Valuable financial help has been given by the Society for the Propagation of the Gospel in Foreign Parts towards the support of beds.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on May 21st, Sir Francis H. Champneys being in the chair. A letter was considered from the executive subcommittee of the Nursing and Midwifery Conference forwarding a copy of a resolution passed unanimously at the midwifery session of the conference on April 30th, suggesting that the Board should impose some definite qualifications guaranteeing the efficiency of an inspector of midwives. The board decided that the executive committee be informed that inspectors of midwives are not subject to the jurisdiction of the Board. A letter was considered from the London County Council suggesting that the register of cases to be kept by a midwife as prescribed by Rule E.23 should specifically provide a space in which to record the pulse and temperature of the patient. The Board decided that the reply be that this question has been considered by the Board, which thinks that the records of pulse and temperature are too numerous to be conveniently entered in the register and that the best way of recording them is in a separate book properly devised. A letter was considered from the National Association of Midwives (Manchester) forwarding a copy of a resolution passed unanimously at a meeting held on April 27th, urging that every facility should be given for the full and complete training of midwives so as to enable them to deal with every emergency arising in childbirth. The Board decided that the association be informed that the Board does not approve the suggestion.

MEDICINE AND THE LAW.

The Royal Society for the Prevention of Cruelty to Animals and the Runcorn Research Laboratories.

AN inspector of the Royal Society for the Prevention of Cruelty to Animals appealed recently to the Divisional Court against a decision of the justices of the county of Chester dismissing a summons taken out against Dr. Warrington Yorke, director of the Runcorn Research Laboratories at Crofton Lodge. The summons had charged the defendant with unlawfully and cruelly causing unnecessary suffering to a donkey by omitting to give it proper and necessary care and attention when in a suffering state. The magistrates dismissed the case on the facts, holding that the animal did not suffer unnecessary pain in the circumstances proved to have existed, and taking into consideration that the defendant was licensed to conduct the experiment in question. The appeal was dismissed by the Divisional Court on the ground that there was no point of law involved in the decision and that the justices had found as a fact that the respondent had not caused unnecessary suffering as charged against him in the summons. Their lordships did not call upon counsel for the respondent to argue the case on his behalf. The facts of this case were that the defendant, Dr. Yorke, and Dr. B. Blacklock were experimenting with antimony trioxide with a view to testing its therapeutic value in the treatment of experimental trypanosomiasis. An intramuscular injection in the gluteal region with a view to ascertaining the maximum dose of the drug was followed in the donkey, the subject of the summons, by necrosis of the muscle, with the result that its hind legs became paralysed and it lay down in the field. It was seen by Dr. Yorke at frequent intervals, and given food and water by the laboratory assistants. It was in a field surrounded by a wall, with a footpath at one corner. The defendant, on being visited by a policeman who complained of the condition of the donkey, pointed out that he made the experiment under licence from the Home Office, and that he could not destroy the donkey as the result of the experiment was not ascertained. Later he refused to allow an inspector of the Royal Society for the Prevention of Cruelty to Animals to see the animal, which had been removed from the field, and recommended him to communicate with the Home Office or with one of its inspectors, giving him the name of Sir James Russell. Two days after the policeman's visit the animal was killed with a Greener gun. Three weeks later a summons was taken out against Dr. Yorke, which was dismissed as stated. Sir Frederick Norman, chairman of the bench, then commented upon the manner in which the case had been presented by the society and upon the society not having communicated with the Home Office as suggested by the defendant. The Bench at that time refused to state a case for the consideration of the Divisional Court, on the ground that no point of law was involved, but apparently agreed to do this later, with the result that their original opinion was upheld. Dr. Yorke and his colleague are to be congratulated upon the result now established, but the Royal Society for the Prevention of Cruelty to Animals do not appear in the case in a favourable light. It is unnecessary to dwell upon the fact that the interests of animals, no less than human beings, are being served by the particular class of experiments referred to in this case. Upon more general grounds it must be pointed out that all experiments on animals are subject to the strict inspection and supervision applied by the State for the purpose of preventing the very conduct with which the society here charged the experimenter. That body had the opportunity to lay the grounds of its complaint before the Home Office and to bring down an inspector to test and to affirm if they were true the accuracy of the statements made, but it neglected to do so. It brought the defendant before police magistrates without calling any expert evidence either of an inspector or anyone else in support of its allegations, and after the facts had been found against it by the magistrates took the case up to the Divisional Court without having any substantial point of law to raise which would have justified it in doing so.

The Property in a Prescription.

Recently at the North London police-court a druggist was summoned for detaining a prescription. The complainant had had a prescription made up by a druggist whose business had been purchased by the defendant. The complainant asked to have the prescription handed back to him, and as this was refused took out the summons in order to obtain it. For the defence it was stated that so far as the defendant was concerned he only had a copy in the books of his predecessor which he had purchased with the business, and the magistrate, Mr. D'Eyncourt, observed that according to his experience the original document containing the prescription was usually returned by the druggist to the customer. The defendant after discussion offered to copy out the prescription and hand it to the complainant in return for a fee, but eventually he consented to do so without payment. It was suggested on behalf of the complainant that the copy should be cut from the book and handed over, but Mr. D'Eyncourt refused to order this to be done, saying that if there were any question of an infringement to be raised it was for the medical man who gave the prescription to raise it. The arrangement mentioned above having been arrived at the summons was withdrawn on the defendant paying 13*s.* 6*d.* costs.

Malingering under the Workmen's Compensation Act.

His honour Judge Amphlett in the Birmingham county court recently terminated an award of 4*s.* 6*d.* per week under which a girl was receiving compensation from her employers for the alleged results of an accident. Her story was that while following her occupation of a scissors-setter some filings flew into her eyes so that she had lost her sight and could follow no employment. According to her employers she was perpetrating a fraud upon them. Mr. W. Allport, who as medical referee had had the girl under observation, had succeeded in covering her eyes with metal discs in such a way that these would have shown if they had been tampered with. After being thus covered for a few days the eyelids had ceased to show signs of inflammation. The girl had resisted having her eyelids opened, but upon their being opened by force the lids and eyeballs were found to be normal and healthy. She had persisted in keeping her eyes closed when under observation in a nursing home, and when they had been forcibly opened had rolled her eyes upwards so that they had to be brought into a normal position with forceps for examination.

A NEW WATER RESERVOIR AT SOUTHEND.

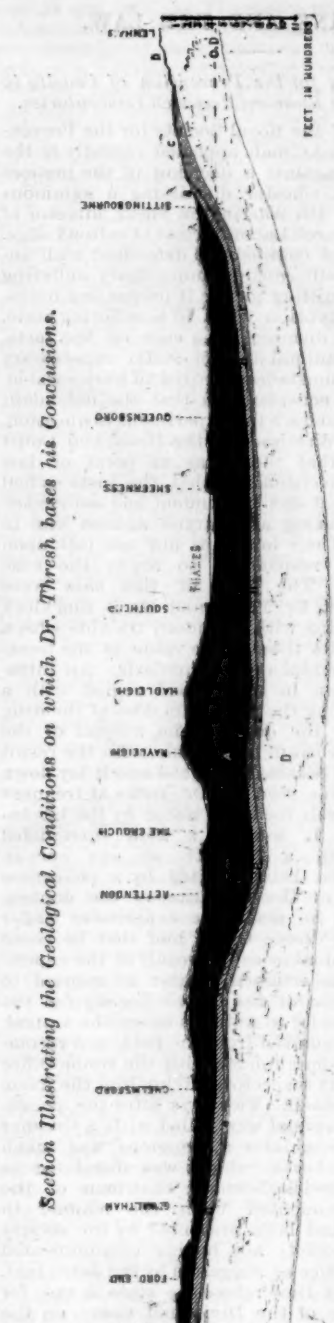
(FROM A CORRESPONDENT.)

AT Vange, some 10 miles distant from Southend, there has recently been completed the first half of what will be eventually one of the largest covered reservoirs in the United Kingdom. This section is capable of storing not less than 17 million gallons of water. The population of Southend and the adjacent district is multiplying rapidly, and those who realise the difficulty attendant upon obtaining a large quantity of water suddenly for a community will appreciate the foresight of the water company.

Though the reservoir is an underground one, the bottom is above the drainage level of the neighbouring water-courses, thus reducing the risk of local pollution. The clay from the excavation has been used to form the puddled embankment necessary to impound this huge volume of water, covering some 4 acres to a depth of 25 feet. The floor is of concrete, while the sloping sides of the retaining embankments are lined internally with artificial stone slabs. A series of dividing walls formed of brick arches cross its width, to support the longitudinal girders carrying the roof, which last is formed of reinforced concrete. The pumping-house, inspection chamber, and provisions necessary to ensure immunity from possible pollution have been carefully considered, to secure a supply of pure water for a population never less than 100,000, and during the summer months probably 150,000. The old reservoirs at Thundersley and elsewhere, containing 7½ million gallons of water, have been retained, and all water is supplied direct to the consumer without previous treatment. There are in all 26 wells, some being of great depth, passing down to the chalk to a total depth of 900 feet. In order to obtain the necessary supply these wells are placed at great distances apart, covering in all a radius of about 20 miles, necessitating some 160 miles of mains, trunk and distributory. Each well has a separate pumping station.

The Cause of the Softness of the Water.

The expense connected with obtaining such a large supply under these difficult conditions has been very great. The overlying clay mantle in many places is known to be 500 feet thick, and is, of course, impervious to water. It is this unfavourable geological formation, together with the chemical peculiarities of the water, that give special interest to this particular water-supply. The chalk, from which some of the water is drawn, is overlain by the Thanet sands, forming the bottom bed of the London tertiaries. It is therefore only at its outcrop, on the north round Colchester and Braintree, and on the south in the neighbourhood of Grays and in Kent, that the rainfall can find access and maintain the supply to this great reservoir of the London basin. The rain water, charged with carbonic acid falling upon the chalk, dissolves calcium carbonate to an extent that produces in wells near the outcrop a hardness of 31·0, while the same water when reaching mid-Essex and the south-eastern district is almost alkaline, having but 1·8 degrees of hardness, due to the presence of sodium carbonates and sulphates. Now it is known that sea water percolates through fissures in the chalk, so much so that certain wells at a distance from the coast have had to be abandoned owing to the excess of sodium chloride present in the water. This percolation from the sea is thought to account for the large amount of sodium chloride frequently present in mid-Essex water, varying considerably in different localities. However, unlike the calcium salts of the hard water, which seem to be replaced by salts of sodium (carbonate and sulphate) in the soft water, the sodium chloride bears no relation to the other salts present. The point of interest is the gradual increase in the softness of the water as it approaches the point of greatest depth of clay. Dr. J. C. Thresh, medical officer of health to the Essex county council, who has devoted great attention to the subject, accounts for this by the following theory. The immense mass of clay compresses the chalk in proportion as it approaches its greatest depth, rendering the chalk impervious to water or nearly so. Thus water falling on the outcrop at first dissolves the chalk-forming fissures until the acid is exhausted. The water



Section Illustrating the Geological Conditions on which Dr. Thresh bases his Conclusions.

A, London clay of varying thickness, excluding the rainfall between Dunmow on the north and the district round Rochester, Lenham, and Charing on the south, at which places the chalk comes to the surface. The clay is covered with alluvial deposits, boulder clay, Bagshot sands, &c., in varying quantities.

B, The Woolwich and Reading beds, some impervious, others porous to some extent, from 20 feet to 80 feet thick.

C, Thanet Sands. It is thought that in the Eocene epoch these were derived from flints, the composition of which is silica chemically deposited round some siliceous sponge or other similar nucleus. They are associated with glauconite grains whose chemical constituents tend to reduce any hardness due to calcium carbonate.

D, Chalk. This, on the north-west, rises to the higher elevation round Saffron Walden, and is some 1000 feet thick, while towards the south its surface has been denuded, and finally ends abruptly in the south-east in an escarpment overlooking the weald of Kent and Sussex. Here it is only some 400 feet thick. Its trend mounts overlooking the weald of Kent and Sussex. Here it is only over the weald, falling to join the Sussex downs. The denudation of this dome, it is supposed, provided most of the material for the formation of the London tertiaries. O.D., Ordnance datum.

then recedes from the outcrop along the top of the chalk through the Thanet sands towards the centre of the great mass of clay, and owing to increased compression and loss of acid is unable to soak deeper into the chalk and rests in the Thanet sands above. These sands have a varying thickness of 10–40 feet. According to the theory of Dr. Thresh, in which he is supported by Bischoft in his "Chemical and Physical Geology," "calcareous water passing through certain silicates of alumina containing potash and soda become softened." Such silicates are present in the Thanet sands in the form of glauconite, a hydrous silicate of aluminium, iron (in the condition of peroxide), potassium, magnesium, and calcium.[1] Glauconite is the soft earthy substance found in shells of foraminifera, which when present in great quantities forms greensands and glauconite limestone.

Dr. Thresh proved the softening property of these sands by experiment, but found that though the softening power was lost after long contact with a hard water this could be reinstated by contact with a saline water such as would be supplied by infiltration from the sea. In another experiment, by mixing water composed of similar constituents to sea water with one hardened by calcium carbonate, &c., similar in composition to water drawn direct from the chalk and afterwards passing the same through a greensand filter, a water was produced similar in its chemical constituents to the deep well water of central and south-east Essex. This theory seems to prove that the extreme softness of the water supplied to the Southend district is due to two circumstances: the compression of the water in the Thanet sands above the chalk acting as a softening filter, and the renewal of the softening properties contained in these sands by the presence of sea water due to percolation.[2]

The following is an analysis of No. 1: the soft water supplied to Southend. No. 2: ordinary sea water. No. 3: hard water drawn directly from the chalk:—

No. 1.—Southend Water.

	Grains per gallon.
Calcium carbonate	1·2
Magnesium carbonate	0·4
Sodium carbonate	21·0
Sodium sulphate	9·1
Sodium chloride...	22·7
Silica, &c.	0·9
	55·3

No. 2.—Sea Water.

	Per cent.
Sodium chloride...	78·32
Magnesium chloride	9·44
Magnesium sulphate	6·40
Calcium sulphate	3·94
Potassium chloride	1·69
Other substances, including calcium carbonate and silica	0·21
	100·00

No. 3.—Hard Chalk Water.

(Manningtree, North Essex.)

	Grains per gallon.
Calcium carbonate	16·4
Magnesium carbonate	4·5
Magnesium sulphate	5·0
Magnesium chloride	1·3
Sodium chloride	16·0
Silica, &c.	1·2
	44·4

The chalk water at Manningtree undoubtedly contains a trace of sea water, and it will be seen that if most of the calcium and magnesium salts were converted by the action of the Thanet sand into the corresponding salts of sodium, a water identical in character with the Southend water would result. Such soft, alkaline waters appear to be excellently adapted for drinking and general domestic purposes.

[1] For analysis see "Report on the Deep Sea Deposits," Challenger Reports, 1891, p. 387.

[2] THE LANCET, Feb. 3rd, 1912, p. 315.

A GENERAL TUBERCULOSIS SCHEME FOR LONDON.

THE Public Health Committee on May 26th presented to the London County Council a complete scheme for the treatment of tuberculosis amongst the uninsured population of the metropolis which it has had in preparation since February, 1913. In the interval, as we have noted from time to time,[1] the relations between the County Council, the Metropolitan Asylums Board (as the infectious diseases authority in London), and the London Insurance Committee have been defined, and a beginning has been made with the organisation of dispensary treatment, several local schemes having been approved.

In outlining its scheme the Public Health Committee stated that it was anxious to encourage the provision of a complete network of dispensaries, as it had been much impressed with the potential value of these institutions as a means of discovering contact cases at an early stage and as a necessary first unit in any complete scheme. The committee had tried also to make the fullest possible use of the many agencies already available, and so to frame the scheme as to secure the coöperation of the great London hospitals. The Council's efforts would be most usefully directed to linking up all the various existing agencies and others to be created. It should use its funds to encourage the provision of fresh accommodation and to keep open institutions which might otherwise be closed, for the committee had come to the conclusion that adequate provision could be made through existing authorities, and that the Council itself need not own or manage institutions. Special attention should be given to the provision of residential accommodation for tuberculous children, for in this direction expenditure in treatment would be most profitably incurred.

Domiciliary treatment the committee dismissed in a few words with an allusion to the provision made under the Insurance Act and the statement that "domiciliary treatment of uninsured persons is provided by private practitioners, district medical officers, and voluntary institutions, and, in so far as it may be incidental to dispensary treatment, by the medical officer of the dispensary." Apparently financial assistance in uninsured domiciliary cases is not contemplated. Dispensary treatment would be provided by the borough councils, the County Council paying half the cost in the case of uninsured persons, subject to a condition, amongst others, that the dispensary would be linked up with a hospital. (The whole of these conditions were published in THE LANCET of Nov. 22nd, 1913, p. 1481.) Arrangements would be made by the County Council for the provision of residential accommodation for (1) observation, (2) hospital, (3) sanatorium, and (4) chronic or advanced cases.

An Honorary Tuberculosis Advisory Board.

For the purpose of selecting patients (uninsured) for residential treatment there should be established an honorary advisory board consisting of—

(*a*) One representative appointed by each of the teaching and other general hospitals and children's hospitals which are acting in any capacity under the scheme.
(*b*) Two representatives appointed by each of the three special chest hospitals.
(*c*) The medical superintendent appointed by each of the sanatoriums with which arrangements have been made by the Council.
(*d*) Two representatives of the tuberculosis dispensaries.
(*e*) The medical officer and deputy medical officer of health appointed by the County Council.

The board would be empowered, with the consent of the Council, to coöpt persons possessing special medical or surgical knowledge. The representatives appointed by the teaching and general hospitals should be physicians and assistant physicians actively engaged in hospital practice. The honorary advisory board would be asked to prepare a memorandum as to the types of cases suitable for the various forms of institutional treatment, this to be circulated to the medical officers and institutions dealing with the cases. The board should advise as to forms for medical reports and generally as to all matters upon which uniformity was desirable or upon which the Council might desire to have its opinion. The advisory board should appoint from its own body, or, if thought desirable, from outside, a rota of two or more physicians to act as medical referees and to examine all cases referred to them by the medical officer of the county in accordance with conditions to be prepared by the advisory board and approved by the Council. These physicians would attend as required at a limited number of convenient centres for the purposes of examining cases,

[1] THE LANCET, Feb. 15th (p. 476), March 15th (p. 796), and Oct. 25th (p. 1206), 1913.

advising the county medical officer and recommending as to the action to be taken. Each physician while on the rota would be paid an honorarium of one guinea for each case. Representatives on the advisory board of sanatoriums, dispensaries, and the County Council would not be eligible to serve on the rota.

The committee anticipated that the advisory board would be of great assistance in advising the Council generally on all matters necessary to secure smooth working and useful coöperation amongst the different institutions taking part in the scheme. Although this proposal was new to the Council, the committee had had the advantage of conferring upon it with representatives of the principal London hospitals, and a resolution was passed by a large majority in which the representatives expressed general approval of the proposals and their intention to advise their several hospitals to appoint members on the advisory board.

Organisation of Treatment.

It should be referred to the dispensary medical officer to classify the cases clinically as suitable for home treatment, consultative reference to hospitals, in-patient hospital treatment or sanatorium treatment, and to forward to the medical officer of health for the borough a report on each case. The local medical officer of health would then classify the cases as to home conditions in three classes—(*a*) satisfactory, (*b*) unsatisfactory, and (*c*) removal urgently necessary. In cases recommended for in-patient hospital treatment or sanatorium treatment, the papers would be forwarded to the county medical officer, and he would refer to the rota all cases in which the advice of the referees was required. The judgment of the medical referees would not be subject to clinical review by the Council. Children suffering from tuberculosis would be grouped under the following classes: those suffering from (1) bone and joint tuberculosis; (2) pulmonary tuberculosis; (3) tuberculosis of the skin, glands, and other organs; and (4) suspects—i.e., cases noted by bacteriological methods to be tuberculous or found on medical examination to be predisposed to the disease and presenting signs pointing to the possibility of the disease in an incipient form. About 1500 children of the first class were in attendance at schools for the physically defective, and the remainder might be classed as in-patients or out-patients at London hospitals. Some pulmonary cases could be dealt with in open-air day schools; those cases which needed residential treatment might be met by making arrangements for the children to sleep at night at open-air schools. The glandular cases presented little difficulty; a small number would require a stay in the country, the others could be dealt with in open-air schools and tuberculosis dispensaries. In this matter the school medical work must be coördinated. In the course of medical inspection all cases of tuberculosis not notified to the local medical officers of health should be notified to the county medical officer. Arrangements must also be made for after-care and the preservation of records.

In regard to the general provision of residential accommodation, the Public Health Committee considered that, as most of those for whom the Insurance Committee made provision were males, the Council would find that most of the adults for whom it would be responsible would be women. It was more difficult in the case of adults than of school children to frame a reliable estimate of numbers, but probably by April, 1915, for adults 160 beds would be required in hospitals and 240 beds in sanatoriums, with an initial provision for children of 150 beds in residential institutions. So far as hospital beds were concerned there was accommodation at reasonable prices almost sufficient for the needs of the immediate future, but this was not the case with sanatorium beds either for adults or children. The Council should encourage existing institutions to increase their accommodation. Subject in some cases to adjustment of questions still under discussion, beds could be obtained at the Brompton, City of London (Victoria Park), King's College, Metropolitan, Royal Chest (City-road), Royal Free, St. Bartholomew's, St. Mary's, University College, and Westminster Hospitals, and the Fairlight (Hastings), Frimley, Whitmead (Surrey), and Maltings Farm (Suffolk) Sanatoriums. The authorities of King's College Hospital were prepared to place at the Council's disposal when ready a new ward containing 24 beds, the cost to the Council being £1800 a year. This offer the committee proposed to accept. The sanatorium accommodation available was considerably below the Council's requirements, but it was hoped that a number of additional beds would be obtained from institutions which at present asked more than 30*s.* a week for a bed. Even then many more beds would be needed, and the Metropolitan Asylums Board had been asked on what terms it could provide 150 beds, which would be a suitable initial provision. There were in Poor-law institutions about 2300 advanced or chronic cases of tuberculosis. If the Council provided for these cases one-half of the cost would be borne by the Exchequer instead of by the rates as at present. On grounds of convenience the committee had asked the Metropolitan Asylums Board to deal with these cases on its behalf, and perhaps to take over some of the infirmaries. The committee had fixed 20*s.* as a proper weekly charge in respect of residential accommodation for tuberculous children. Arrangements were pending with the East Anglian Sanatorium, Nayland, for 50 beds and the Victoria Home, Margate, for five beds, and the Metropolitan Asylums Board had been asked to provide accommodation. The East Anglian Sanatorium would provide 50 additional beds, and offered to supply 50 beds in tents until permanent structures were ready. Negotiations were proceeding with the authorities of the Alexandra Hospital for the erection of a children's convalescent home near London. As explained above, the greater part of the accommodation required for children would be supplied by the children's hospitals and the physically defective schools.

In regard to after-care the scheme provided that the local medical officer and the private practitioner should be notified of the discharge of an adult patient from a sanatorium. In all cases in which a patient or the person legally responsible for a patient was in receipt of an income of £160 a year or over, and the circumstances appeared to justify the demand, a charge should be made for treatment received. As a condition of receiving residential treatment a patient would be required to give an undertaking to remain under medical supervision on his discharge. On the question of cost the committee gave the following estimate:—

	Cost for 1914-15.	Cost for 1915-16.
Hospital beds (160)	£ 8,923	£12,480
Sanatorium beds (240)	13,439	18,720
Children's beds (150)	5,454	7,680
Travelling and incidental expenses, including fees of medical referees ...	1,100	1,400
	28,921	40,280
(Say)	29,000	(Say) 40,000
Government contribution	14,250	20,000
Fees of medical referees, payable by borough councils	500	—
Net estimated expenditure	£14,250	£20,000

Discussion.

After a short debate the Council approved the scheme. Mr. O. E. WARBURG, chairman of the committee, emphasised the point that the intention to make the dispensary the essential unit of the machinery was in accord with the report of the departmental committee. Whenever a patient attended a dispensary a visit would afterwards be paid to his home to see the conditions under which he was living. In the second unit of the scheme—residential accommodation—it was intended to make full use of the knowledge already possessed by the great hospitals, but the attempt was made to provide machinery by which the various agencies might be linked up.

Mr. J. A. DAWES, M.P., chairman of the London Insurance Committee, said that the one great blot on the scheme was that it dealt with uninsured persons only. Other counties and large boroughs had taken a broad view and had undertaken the treatment of the whole tuberculous population, the Insurance Committees handing over their patients and available funds to the county councils. Only thus could a comprehensive and entirely satisfactory scheme be prepared for London. It was unfortunate that for dispensary purposes there were 29 "ring-fence" areas—the boroughs—in some of which there were municipal dispensaries and in others dispensaries provided by voluntary effort, whilst in some the borough councils had refused to deal with the matter at all. In 10 or 12 boroughs nothing had been done beyond the passing of pious resolutions. The present scheme was a very great step in providing residential accommodation, but he was afraid the committee had seriously underestimated the number of beds required in hospitals and sanatoriums.

THE INFECTIVITY OF PULMONARY TUBERCULOSIS.

THE STATEMENT BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

IN our issue of April 11th, 1914, in the report of the meeting of the Comitia of the Royal College of Physicians of London, we referred to the adoption of the report of a subcommittee of five members upon the infectivity of tuberculosis. This report, of which we gave a summary, has been issued by the College in the form of a statement which is designed to render assistance to those having administrative duties in connexion with tuberculosis. At the request of several correspondents we now print the statement in full. It has been drawn up in the hope that medical men in private practice will base on it a common procedure in giving advice and instruction about the infectivity of tuberculosis, and that medical officers of health may find it useful in connexion with administration. The statement is specifically issued by the Royal College of Physicians "in view of the exaggerated fear of the infectivity of pulmonary tuberculosis entertained by the public." Copies may be had on application to the Registrar of the College, Pall Mall East, London, S.W.

The Infectivity of Tuberculosis.

1. Tuberculosis is an acquired disease, but certain constitutional types may be inherited which render the patient specially susceptible to infection, and there is reason to think that such susceptibility is an inherited character.

2. The infective agent is the tubercle bacillus. This may be contained in the various discharges and excreta of the patient, and especially in the sputum of those suffering from pulmonary tuberculosis. No discharge is infective unless it contains the tubercle bacillus.

3. Cases of tuberculosis of bones, glands, and internal organs from which there is no discharge or which do not furnish any excretion, and cases of arrested pulmonary tuberculosis, have never been proved to be infectious.

(By arrest is here meant that all the symptoms and physical signs of activity have disappeared, and the sputum has either ceased or no longer contains tubercle bacilli.)

4. The means by which tubercle bacilli may enter the body are:—

(*a*) *By inoculation* through a wound or abrasion of the skin. This has occasionally occurred to workers in laboratories, post-mortem attendants, and others dealing with tuberculous material, and is presumably the way in which lupus is acquired.

(*b*) *By inhalation.* Susceptible animals are readily infected by the inhalation of air containing tubercle bacilli, whether in droplets or suspended as fine dust, but in the spread of the disease among human beings the latter appears to be the more important means of infection. The sputum or other discharges, whether on soiled handkerchiefs, linen, garments, or elsewhere, when dried, may become pulverised, and in this condition may be readily dispersed in the air of a room. That droplets of sputum are less important agents of infection is suggested by the fact that the incidence of consumption upon the staff, nurses, and others engaged in hospitals for the treatment of tuberculous disease, where all discharges are carefully disposed of, is not above the average in the general population.

(*c*) *By swallowing.* Dust infected by the tubercle bacillus may be conveyed to food and so enter the alimentary canal; or infection may occur more directly in the act of kissing or by consumptive and healthy persons using the same food utensils. As about 10 per cent. of the milk supplied to large cities contains tubercle bacilli derived from infected cows, this avenue of infection is particularly important in the case of children. The bovine tubercle bacillus is more commonly responsible for tuberculosis in young children than in adults, but the proportion of cases due to it varies very much in different localities.

There is no evidence that tuberculosis can be conveyed to others either by the breath alone, or by emanations from patients, or by their garments, unless soiled by dried sputum or discharges.

5. The spread of tuberculosis is favoured by uncleanliness, overcrowding, and imperfect ventilation, and is hindered by the opposite conditions. Experience in hospitals and other institutions where the following precautionary measures have been thoroughly carried out indicates that by such measures the risk of infection is reduced to a minimum, namely—

(*a*) The careful disposal and disinfection of the sputum and other discharges.
(*b*) The disinfection or destruction of soiled handkerchiefs, clothes, and linen.
(*c*) The removal of dust by frequent moist cleansing of the floors, walls, &c., of the rooms.
(*d*) The supply of abundant air space, and free ventilation with fresh air.

No risk is incurred by living in the immediate neighbourhood of institutions for the treatment of tuberculosis which are properly conducted.

ROYAL COMMISSION ON VENEREAL DISEASES.

EVIDENCE was given at the thirty-sixth meeting of the Royal Commission on Venereal Diseases by Sir T. Clifford Allbutt, Regius Professor of Physic in the University of Cambridge.

Sir Clifford Allbutt, whose evidence related mainly to arterial disease, stated that syphilis was by far the gravest of the infectious diseases of the arteries, and that it was particularly grave in its tendency to cause aneurysms of which probably 95 per cent. were syphilitic. He thought it probable that, if infection with syphilis were dealt with at an early stage and by the most modern methods of treatment, the occurrence of these syphilitic diseases of the arteries might be avoided. In cases where syphilitic disease of the aorta did occur it was of enormous importance that it should be dealt with at the earliest possible moment and with the greatest and promptest vigour.

At the thirty-seventh meeting evidence was given by Mrs. R. P. Wethered and Miss Amy Hughes, representing a large and representative meeting of ladies interested in rescue work which was held some time ago under the presidency of Her Royal Highness Princess Christian. At this meeting the following resolution was passed:—

> That this meeting, consisting of rescue workers, matrons of hospitals and workhouses, district nurses, lady guardians, and others, advocates a system of confidential notification (by doctors) to a specially appointed sanitary authority as the only means of altering the law of libel and so ensuring proper precautions being taken against danger to the community, and especially to innocent persons.

Mrs. Wethered submitted to the Commission particulars of a number of cases which had occurred in her experience illustrating the necessity of telling the truth with regard to this matter and of recognising the infectious nature of these diseases.

DONATIONS AND BEQUESTS.—The Hospital for Consumption and Diseases of the Chest, Brompton, has received a donation of £500; the Prince of Wales's General Hospital, Tottenham, £250; and the Chelsea Hospital for Women £500 towards its rebuilding fund, and £100 towards the funds of its convalescent home at St. Leonards-on-Sea from the trustees of Smith's (Kensington Estate) Charity. The same charity has sent £200 to Queen Charlotte's Hospital, Marylebone-road.—The late Mr. Frederick Burton, of Hopefield, Pendleton, and Gwaynynog, Denbigh, and treasurer of the Salford Royal Hospital, has left £2000 to the Salford Royal Hospital, £1000 to the Manchester Royal Infirmary, £1000 to the St. Mary's Hospitals, Manchester, and £500 to the Denbigh Infirmary.—Mr. Edward Graham Wood, of Salford and Southport, has presented to the Southport Infirmary £1000 to endow a bed, to be called the Kenneth Graham Holden Bed. This is the fifth hospital bed which Mr. Wood has endowed in Lancashire.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 97 English and Welsh towns with populations exceeding 50,000 persons at the last Census and whose aggregate population at the middle of this year is estimated at 18,120,069 persons, 8500 births and 4834 deaths were registered during the week ended Saturday, May 23rd. The annual rate of mortality in these towns, which had declined from 15·1 to 14·1 per 1000 in the four preceding weeks, further fell to 13·9 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 14·5, against 13·6 per 1000 in London during the same period. Among the several towns the death-rate last week ranged from 5·1 in Ealing, 6·2 in Leyton, 6·4 in Reading, 6·9 in Ilford, and 7·5 in Eastbourne, to 20·2 in Oxford, 20·5 in Sunderland, 21·0 in Middlesbrough, 21·1 in West Hartlepool, and 22·0 in Stockton-on-Tees.

The 4834 deaths from all causes were 71 fewer than the number in the previous week, and included 468 which were referred to the principal epidemic diseases, against numbers declining from 453 to 421 in the three preceding weeks. Of these 468 deaths, 144 resulted from whooping-cough, 143 from measles, 83 from infantile diarrhœal diseases, 51 from diphtheria, 34 from scarlet fever, and 13 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·3, against 1·3 and 1·2 per 1000 in the two preceding weeks. The deaths attributed to whooping-cough, which had been 139, 146, and 143 in the three preceding weeks, were 144 last week, and caused the highest annual death-rates of 1·5 in Stoke-on-Trent, 1·6 in Barrow-in-Furness and in West Hartlepool, and 1·7 in Walsall and in Newport (Mon.) The deaths referred to measles, which had been 155, 146, and 138 in the three preceding weeks, rose to 143 last week; the highest death-rates from this disease were 1·2 in Blackburn, in Middlesbrough, and in Newport (Mon.), 1·4 in Bootle, 2·0 in Dudley and in Sheffield, 2·1 in Warrington, and 2·8 in Rochdale. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 59, 59, and 69 in the three preceding weeks, further rose to 83 last week; of this number 17 were recorded in London, 10 in Liverpool, 9 in Manchester, and 3 each in Bristol, Birmingham, Salford, Sheffield, and Middlesbrough. The deaths attributed to diphtheria, which had been 50, 44, and 31 in the three preceding weeks, rose to 51 last week, of which 12 occurred in London, 5 in Birmingham, 4 in Leeds, and 2 each in West Ham, Walthamstow, Bradford, and Middlesbrough. The deaths referred to scarlet fever, which had been 35, 27, and 33 in the three preceding weeks, were 34 last week, and included 6 in London, 5 in Liverpool, 4 in Manchester, and 2 each in Birkenhead, Oldham, Sheffield, and Newcastle-on-Tyne. The fatal cases of enteric fever, which had been 15, 13, and 7 in the three preceding weeks, rose to 13 last week, of which 3 occurred in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had been 2376, 2901, and 2862 at the end of the preceding three weeks, had increased to 2909 on Saturday last; 415 new cases were admitted during the week, against 377, 398, and 349 in the three preceding weeks. These hospitals also contained on Saturday last 1125 cases of diphtheria, 363 of whooping-cough, 100 of measles, and 47 of enteric fever, but not one of small-pox. The 1097 deaths from all causes were 59 fewer than the number in the previous week, and corresponded to an annual death-rate of 12·7 per 1000. The deaths referred to diseases of the respiratory system, which had been 185, 221, and 190 in the three preceding weeks, further declined to 183 last week, and were 9 below the number recorded in the corresponding week of last year.

Of the 4834 deaths from all causes in the 97 towns, 169 resulted from various forms of violence, and 363 were the subject of coroners' inquests, while 1433 occurred in public institutions. The causes of 37, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Sheffield, Leeds, Bristol, Bradford, Hull, and in 56 other smaller towns. Of the 37 uncertified causes of death, 8 were registered in Birmingham, 6 in Liverpool, 3 in Portsmouth, 2 in Leicester, and 2 in Nottingham.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,293,200 persons at the middle of this year, 1268 births and 709 deaths were registered during the week ended Saturday, May 23rd. The annual rate of mortality in these towns, which had been 15·2, 16·2, and 15·3 per 1000 in the three preceding weeks, rose to 16·1 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 16·0, against a corresponding rate of 14·5 per 1000 in the 97 large English towns. Among the several towns the death-rate last week ranged from 3·1 in Falkirk, 8·8 in Kilmarnock, and 10·5 in Clydebank, to 16·9 in Perth, 17·8 in Glasgow, and 24·3 in Hamilton.

The 709 deaths from all causes were 36 in excess of the number in the previous week, and included 62 which were referred to the principal epidemic diseases, against 64 and 55 in the two preceding weeks. Of these 62 deaths, 27 resulted from measles, 14 from infantile diarrhœal diseases, 10 from whooping-cough, 7 from scarlet fever, 3 from diphtheria, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·4, against 1·3 per 1000 in the 97 large English towns. The deaths attributed to measles, which had been 19, 31, and 20 in the three preceding weeks, rose to 27 last week, of which 17 occurred in Glasgow, 4 in Dundee, 2 in Edinburgh, and 2 in Hamilton. The deaths of infants (under 2 years) referred to diarrhœa and enteritis, which had been 17, 4, and 6 in the three preceding weeks, further rose to 14 last week, and included 10 in Glasgow. The fatal cases of whooping-cough, which had increased from 9 to 18 in the four preceding weeks, declined to 10 last week, and comprised 7 in Glasgow, 2 in Coatbridge, and 1 in Dundee. The deaths attributed to scarlet fever, which had been 2, 4, and 4 in the three preceding weeks, rose to 7 last week, of which 3 occurred in Glasgow, 3 in Edinburgh, and 1 in Motherwell. The deaths referred to diphtheria, which had declined from 9 to 5 in the four preceding weeks, further fell to 3 last week, and were recorded in Glasgow, Aberdeen, and Paisley. The fatal case of enteric fever was registered in Glasgow. In addition to the above a death from typhus occurred in Glasgow.

The deaths referred to diseases of the respiratory system, which had been 90, 116, and 104 in the three preceding weeks, slightly rose to 107 in the week under notice; and 32 deaths were attributed to various forms of violence, against 16 and 23 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,205,280 persons at the middle of this year, 630 births and 438 deaths were registered during the week ended Saturday, May 23rd. The annual rate of mortality in these towns, which had steadily declined from 25·3 to 18·2 per 1000 in the four preceding weeks, rose to 18·9 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 20·6 per 1000; in the 97 large English towns the corresponding rate did not exceed 14·5, while in the 16 Scotch towns it was equal to 16·0 per 1000. The annual death-rate last week was equal to 19·3 in Dublin (against 12·7 in London and 17·8 in Glasgow), 17·9 in Belfast, 19·7 in Cork, 16·5 in Londonderry, 24·4 in Limerick, and 19·0 in Waterford, while in the 21 smaller towns the mean rate rose to 19·5 per 1000.

The 438 deaths from all causes were 17 in excess of the number in the previous week, and included 46 which were referred to the principal epidemic diseases, against numbers declining from 75 to 43 in the five preceding weeks. Of these 46 deaths, 18 resulted from measles, 10 from infantile diarrhœal diseases, 7 from whooping-cough, 6 from scarlet fever, and 5 from diphtheria, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases last week was equal to 2·0, against corresponding rates of 1·3 and 1·4 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 45, 30, and 21 in the three preceding weeks, further declined to 18 last week, of which 16 occurred in Dublin. The deaths of infants (under 2 years) referred to diarrhœa and enteritis, which had been 8, 3, and 9 in the three preceding weeks, were 10 last week, and included 7 in Dublin and 2 in Belfast. The fatal cases of whooping-cough, which had declined from 14 to 8 in the five preceding weeks, were 7 last week, of which 5 were registered in Belfast. The 6 deaths attributed to scarlet fever were 2 above the average in the earlier weeks of the quarter, and comprised 5 in Belfast and 1 in Dublin. The 5 deaths referred to diphtheria, which were all recorded in Dublin, were 3 above the average in the earlier weeks of the quarter. In addition to the above, 5 fatal cases of typhus were registered in Belfast.

The deaths referred to diseases of the respiratory system, which had been 87, 74, and 86 in the three preceding weeks, fell to 79 in the week under notice. Of the 438 deaths from all causes, 158, or 36 per cent., occurred in public institutions and 9 resulted from various forms of violence. The causes of 20, or 4·6 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 97 large English towns the proportion of uncertified causes did not exceed 0·8 per cent.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING APRIL, 1914.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1914.	NOTIFIED CASES OF INFECTIOUS DISEASE.												DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.									Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,516,612	—	1233	510	—	45	1	8	315	12	1	2195	6·3	—	74	19	38	106	9	63	309	0·9	4789	13·8
West Districts.																								
Paddington	142,055	—	40	13	—	1	—	1	7	1	—	63	5·8	—	—	1	—	1	—	1	3	0·3	126	11·5
Kensington	170,817	—	61	9	—	1	1	1	11	—	—	84	6·4	—	—	1	—	—	—	2	3	0·2	169	12·8
Hammersmith	124,750	—	45	9	—	—	—	—	14	—	—	68	7·1	—	1	—	1	—	1	—	3	0·3	110	11·4
Fulham	158,849	—	51	12	—	2	—	1	10	—	—	76	6·2	—	—	1	1	6	1	2	11	0·9	159	13·5
Chelsea	83,791	—	9	5	—	1	—	1	—	—	—	16	3·3	—	—	—	1	2	—	—	3	0·6	70	13·6
City of Westminster	152,346	—	37	10	—	3	—	1	6	1	—	58	5·0	—	1	—	1	1	—	—	3	0·3	146	13·2
North Districts.																								
St. Marylebone	112,892	—	18	9	—	4	—	1	3	—	—	35	4·0	—	—	1	—	4	1	2	8	0·9	123	14·5
Hampstead	86,731	—	23	10	—	1	—	—	3	—	—	37	5·6	—	—	—	—	1	—	1	2	0·3	73	11·6
St. Pancras	212,497	—	63	17	—	5	—	1	13	—	—	99	6·1	—	2	1	—	9	1	2	15	0·9	230	14·1
Islington	324,764	—	94	40	—	4	—	2	12	—	—	152	6·1	—	3	—	1	12	—	6	22	0·9	329	12·9
Stoke Newington	50,454	—	8	9	—	—	—	—	3	—	—	20	5·2	—	—	—	—	1	—	1	2	0·1	52	12·7
Hackney	223,724	—	44	46	—	2	—	2	19	—	—	113	6·6	—	1	—	3	8	—	7	19	1·1	240	14·1
Central Districts.																								
Holborn	45,861	—	21	7	—	—	—	—	—	—	—	28	8·0	—	—	—	—	2	—	—	2	0·6	56	16·0
Finsbury	83,212	—	28	8	—	—	—	1	20	1	—	58	9·1	—	3	1	1	5	—	4	19	3·0	123	19·1
City of London	17,129	—	2	—	—	—	—	—	—	—	—	2	1·5	—	—	—	—	—	—	—	—	—	23	18·2
East Districts.																								
Shoreditch	108,869	—	26	8	—	—	—	1	11	—	—	46	5·5	—	—	—	2	5	—	—	7	0·8	143	17·7
Bethnal Green	127,662	—	27	24	—	—	—	1	22	—	—	74	7·6	—	2	1	2	6	—	3	14	1·4	167	17·8
Stepney	273,265	—	59	31	—	2	—	2	27	1	—	122	5·8	—	9	1	3	12	2	2	29	1·4	363	18·0
Poplar	160,222	—	35	23	—	1	—	4	11	—	—	74	6·0	—	5	1	5	1	—	3	15	1·2	175	14·1
South Districts.																								
Southwark	186,941	—	81	26	—	1	—	2	27	4	—	141	9·8	—	1	3	3	6	—	5	18	1·3	243	17·0
Bermondsey	124,213	—	32	12	—	2	—	1	2	1	—	50	5·2	—	6	1	—	1	—	6	14	1·5	176	18·5
Lambeth	296,724	—	108	38	—	10	—	2	16	1	1	176	7·7	—	3	1	6	4	3	4	21	0·9	305	13·1
Battersea	167,338	—	35	16	—	—	—	1	11	—	—	63	4·9	—	5	—	1	1	—	2	9	0·7	164	12·9
Wandsworth	338,998	—	78	22	—	2	—	—	16	1	—	119	4·6	—	6	—	1	7	—	7	21	0·8	259	10·0
Camberwell	262,020	—	84	29	—	1	—	—	21	1	—	136	6·8	—	6	2	3	4	—	3	18	0·9	268	13·0
Deptford	109,182	—	51	15	—	—	—	—	11	—	—	77	9·2	—	4	2	—	—	—	—	6	0·7	101	12·0
Greenwich	96,037	—	26	14	—	—	—	—	9	—	—	49	6·7	—	8	—	—	—	—	—	8	1·1	126	16·8
Lewisham	172,433	—	47	20	—	2	—	1	5	—	—	75	5·7	—	1	1	1	1	—	—	4	0·3	134	9·9
Woolwich	122,836	—	49	28	—	—	—	1	5	—	—	83	8·8	—	2	—	2	6	—	—	10	1·1	138	15·0
Port of London	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

VITAL STATISTICS OF LONDON DURING APRIL, 1914.

In the accompanying table will be found complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 6·3 per 1000 of the population, estimated at 4,516,612 persons in the middle of the year; in the three preceding months the rates were 8·3, 8·5, and 7·4 per 1000 respectively. The lowest rates last month were recorded in Chelsea, St. Marylebone, the City of London, Battersea, and Wandsworth; and the highest rates in Holborn, Finsbury, Southwark, Deptford, and Woolwich. Scarlet fever again showed a decreased prevalence as compared with other recent months; this disease was proportionally most prevalent last month in Holborn, Southwark, Lambeth, Deptford, and Woolwich. The Metropolitan Asylums Hospitals contained 2826 scarlet fever patients at the end of last month, against 3543, 3328, and 3138 at the end of the three preceding months; the weekly admissions averaged 312, against 400, 379, and 337 in the three preceding months. Diphtheria was less prevalent than it had been in any of the seven preceding months; among the several metropolitan boroughs the greatest proportional prevalence of this disease last month was recorded in Stoke Newington, Hackney, Bethnal Green, Poplar, Southwark, Deptford, Greenwich, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1225 and 1306 at the end of the two preceding months, declined again to 1121 at the end of last month; the weekly admissions averaged 114, against 153, 166, and 158 in the three preceding months. Enteric fever was rather more prevalent than it had been in the previous month; the greatest proportional prevalence during April was recorded in the City of Westminster, St. Marylebone, St. Pancras, and Lambeth. There were 55 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 65, 82, and 66 at the end of the three preceding months; the weekly admissions averaged 7, against 15 and 6 in the two preceding months. The 28 cases of puerperal fever notified during the month included 4 in Poplar and 2 each in Islington, Hackney, Stepney, Southwark, and Lambeth. Of the 12 cases of cerebro-spinal meningitis, 4 belonged to Southwark; and the only case of poliomyelitis reported occurred in Lambeth.

The mortality statistics relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex- and age-constitution of the population of the several boroughs. During the four weeks ending May 2nd the deaths of 4789 London residents were registered, equal to an annual rate of 13·8 per 1000; in the three preceding months the rates were 18·4, 14·8, and 15·2 per 1000 respectively. The death-rates last month ranged from 9·9 in Lewisham, 10·0 in Wandsworth, 11·4 in Hammersmith, 11·5 in Paddington, and 11·6 in Hampstead, to 17·7 in Shoreditch, 17·8 in Bethnal Green, 18·0 in Stepney, 18·2 in the City of London, 18·5 in Bermondsey, and 19·1 in Finsbury. The 4789 deaths from all causes included 309 which were attributed to the principal infectious diseases; of these, 74 resulted from measles, 19 from scarlet fever, 38 from diphtheria, 106 from whooping-cough, 9 from enteric fever, and 63 from diarrhœa and enteritis among children under two years of age. No death from any of these diseases occurred last month in the City of London; among the metropolitan boroughs they caused the lowest death-rates in Paddington, Kensington, Hammersmith, the City of Westminster, Hampstead, Stoke Newington, and Lewisham; and the highest rates in Finsbury, Bethnal Green, Stepney, Southwark, and Bermondsey. The 74 fatal cases of measles were 172 below the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in Finsbury, Stepney, Poplar, Bermondsey, Battersea, Deptford, and Greenwich. The 19 fatal cases of scarlet fever were slightly in excess of the corrected average, and included 3 in Southwark, 2 in Camberwell, and 2 in Deptford. The 38 deaths from diphtheria were 2 above the corrected average number; this disease was proportionally most fatal last month in Hackney, Shoreditch, Bethnal Green, Poplar, Southwark, Lambeth, and Woolwich. The 106 fatal cases of whooping-cough were 37 below the corrected average number; the highest death-rates from this cause were recorded in St. Pancras, Holborn, Finsbury, Shoreditch, Bethnal Green, Stepney, and Woolwich. The 9 deaths from enteric fever were 3 in excess of the corrected average number, and included 3 in Lambeth and 2 in Stepney. The mortality from diarrhœa and enteritis among children under two years of age was proportionally greatest in Hackney, Finsbury, Bethnal Green, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases, excluding diarrhœa, was 45·2 per cent. below the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeon: E. G. E. O'Leary to the *Queen*, on recommissioning. Staff-Surgeon: N. J. Roche to the *Sutlej*, for voyage out and home. Surgeon: F. J. D. Twigg to the *Queen*, on recommissioning.

The undermentioned Staff-Surgeons have been promoted to the rank of Fleet-Surgeon in His Majesty's Fleet:—Henry Cadman Whiteside, Robert Lumley Dickinson, Herbert Wells Bayly Shewell, John Martin, Christian Beverley Fairbank, Francis Frederick Lobb, Harold John Chater, Reginald St. George Smallridge Bond, Charles Clarke Macmillan, D.S.O., Fred Claude Bromley Gittings, Ramsey Martyn Richards, Alan Grant Eastment, and George Ernest Duncan (dated May 23rd, 1914).

ROYAL ARMY MEDICAL CORPS.

Major Robert B. Black retires on retired pay (dated May 27th, 1914).

Colonel R. Kirkpatrick, C.M.G., has been appointed Assistant Director of Medical Services to the Presidency Brigade at Calcutta on transfer from Sialkot Cantonment.

Lieutenant-Colonel A. T. J. Lilly has been appointed to officiate as Assistant Director of Medical Services to the Bombay Brigade. Lieutenant-Colonel E. M. Hassard has been granted six months' general leave of absence home from India. Lieutenant-Colonel J. C. Connor has been appointed Deputy Assistant Director of Medical Services on the Headquarter Staff of the Irish Command. Lieutenant-Colonel H. E. Winter has been appointed to hold charge of the Military Hospital at Colaba, Bombay. Lieutenant-Colonel G. H. Hale, D.S.O., has been selected for appointment as Senior Medical Officer at Sialkot Cantonment. Lieutenant-Colonel N. Faichnie has been appointed to the Western Command. Lieutenant-Colonel M. P. C. Holt, D.S.O., has taken over charge of the Cambridge Military Hospital at Aldershot. Lieutenant-Colonel J. W. Bullen has been transferred from the Military Hospital at Sheffield to Strensall. Lieutenant-Colonel T. du B. Whaite has been appointed to hold charge of the Military Hospital at Lahore.

Major V. J. Crawford has been appointed to the Southern Command. Major H. W. H. O'Reilly has joined at Secunderabad. Major H. M. Nicholls has arrived home for duty from India. Major L. W. Harrison has been appointed to the Royal Army Medical College at Grosvenor-road, S.W. Major F. McLennan has taken up duty at Aberdeen. Major J. Poe has joined at Shorncliffe. Major R. McK. Skinner has embarked for India. Major J. D. G. Macpherson has been appointed Deputy Assistant Director of Medical Services to the West Lancashire Division. Major H. D. Packer has joined at Karachi. Major E. F. Q. L'Estrange has arrived home from Cannanore Cantonment. Major A. E. Milner has been appointed to the Recruiting Medical Staff at Birmingham. Major P. S. O'Reilly has been appointed Medical Officer at the Royal Arsenal, Woolwich. Major H. B. G. Walton has been appointed Specialist in the Prevention of Disease to the Bareilly Brigade and placed in charge of the Bacteriological Research Laboratory at the Military Hospital, Bareilly Cantonment. Major C. J. O'Gorman, D.S.O., has been transferred from the Military Hospital at Calcutta to Barrackpore Cantonment. Major G. J. S. Archer has taken up duty at the Royal Victoria Military Hospital, Netley.

Captain H. V. Bagshawe has been transferred from the Military Hospital at Cyprus to Cairo. Captain T. S. Coates has joined at Meerut Cantonment. Captain A. L. Stevenson has been granted six months' general leave of absence home from India. Captain C. W. Bowle has arrived home from India. Captain A. Irvine-Fortescue has taken up special duty in Japan. Captain E. D. Caddell has been appointed to the Dublin District. Captain J. D. Bowie has arrived home on leave of absence. Captain O. R. McEwen has been appointed to the Irish Command. Captain A. H. Hayes has taken up duty at Ambala Cantonment. Captain W. E. C. Lunn has been appointed to the Aldershot Command. Captain V. P. Hutchinson has been appointed to the staff of the Military Hospital at Potchefstroom. Captain T. H. Dickson has taken up duty at Bareilly. Captain R. J. Cahill has been transferred from the Military Hospital at Londonderry to Belfast. Captain M. B. H. Ritchie has been transferred from Chatham to the Colchester District. Captain M. O. Wilson has arrived home from Aden. Captain T. H. Scott has arrived home

from India. Captain P. S. Stewart has been appointed to the Southern Command. Captain H. H. Leeson has been appointed to Khartoum. Captain A. C. Elliott has arrived home from the Military Hospital at Sialkot Cantonment. Captain E. B. Lathbury has been appointed to the Irish Command. Captain A. T. Frost has been transferred from the Military Hospital at Lucknow to Poona Cantonment. Captain C. H. O'Rorke has been appointed to the Military Hospital at Darjeeling. Captain A. D. Stirling has joined the Military Hospital at Cairo. Captain J. R. Forster has been appointed to the Dublin District. Captain M. J. Williamson has been appointed to the Military Hospital at Simonstown. Captain E. W. Vaughan has taken up duty in the Devonport District. Captain R. J. B. Buchanan has taken up duty at the Royal Victoria Military Hospital, Netley. Captain H. H. Blake has joined at Peshawar Cantonment. Captain C. E. W. S. Fawcett has taken up duty at the Military Hospital, Secunderabad Cantonment. Captain W. W. Browne has been appointed Specialist in the Prevention of Disease to the Ahmednagar Brigade. Captain R. A. Bryden has joined at Fleetwood. Captain T. W. Browne has been appointed to the Military Hospital at Cork.

Lieutenant T. E. Osmond has been selected for appointment as Specialist in Dermatology and Venereal Diseases to the Eighth (Lucknow) Division of the Northern Army in India. Lieutenant C. M. Finny has been transferred from the Military Hospital at Ambala Cantonment to the Second (Rawal Pindi) Division. Lieutenant W. L. Webster has embarked for Egypt. Lieutenant W. S. R. Steven has been appointed to the Military Hospital at Quetta Cantonment. Lieutenant F. A. Robinson has been transferred from the Military Hospital at Mhow to Nasirabad Cantonment. Lieutenant R. Davidson has been appointed to the Eighth (Lucknow) Division of the Northern Army in India.

INDIAN MEDICAL SERVICE.

Colonel D. St. J. Dundas Grant has been appointed Assistant Director of Medical Services to the Karachi Brigade.

Lieutenant-Colonel G. J. H. Bell has been appointed Inspector-General of Prisons in Burma. Lieutenant-Colonel E. H. Wright has joined at Tanjore. Lieutenant-Colonel G. G. Giffard has been appointed Superintendent of the Government Maternity Hospital, Madras. Lieutenant-Colonel C. E. Sunder has taken up duty at Patna as Civil Surgeon. Lieutenant-Colonel E. C. Hare has been appointed Sanitary Commissioner in Bihar. Lieutenant-Colonel A. J. MacNab has taken up duty in Kashmir.

Major R. Markham Carter has been appointed to hold temporary Medical Charge of the Prison and Byculla Schools at Bombay. Major A. B. Fry, Special Deputy Sanitary Commissioner for Malaria Research in the Presidency of Bengal, has been appointed to officiate as Sanitary Commissioner during the absence on two years' combined leave of Major W. W. Clemesha. The services of Major W. V. Coppinger, civil surgeon at Lakhimpur, have been placed at the disposal of the Government of Bengal. Major R. M. Corry has been appointed to officiate as Civil Surgeon at Delhi. The services of Major J. W. Greig have been permanently placed at the disposal of the Government of the Punjab. Major G. McPherson has been appointed to officiate as Professor of Ophthalmic Surgery at the Government Medical College, Bombay. Major R. F. Baird has been appointed Civil Surgeon and Superintendent of the Lunatic Asylum at Benares.

Captain F. Palmer has been appointed permanently to the Jail Department in the United Provinces of Agra and Oudh. Captain T. F. Owens has been appointed Chemical Examiner and Government Bacteriologist in Burma. Captain M. Baker has taken up duty in Mardan as officiating Civil Surgeon. Captain J. L. Lunham has been appointed to officiate as Civil Surgeon at Karwar. Captain D. Heron has been appointed Vice-Consul at Seistan and Kain. Captain J. McC. Anderson has taken over civil medical charge at Hoshangabad.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Cadet William McMeekin Chesney, from the Belfast University Contingent, Officers Training Corps, to be Lieutenant, (on probation) (dated April 30th, 1914).

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd East Anglia Field Ambulance, Royal Army Medical Corps: Lieutenant Benjamin Branford Morgan, from the 3rd West Riding Field Ambulance, Royal Army Medical Corps, to be Lieutenant (dated April 18th, 1914).

1st Home Counties Field Ambulance, Royal Army Medical Corps: Lieutenant Arthur P. Draper resigns his commission (dated May 23rd, 1914).

3rd Home Counties Field Ambulance, Royal Army Medical Corps: Lieutenant Edwin A. Houchin to be Captain (dated April 12th, 1914).

Sanitary Service.—Captain George A. Brown resigns his commission (dated May 23rd, 1914).

For Attachment to Units other than Medical Units.—To be Lieutenants: John Chancellor McKenzie (dated April 20th, 1914), and Stanley Southam (dated Jan 3rd, 1914).

Attached to Units other than Medical Units.—Captain Henry A. C. Harris resigns his commission (dated May 23rd, 1914), and Lieutenant John A. West resigns his commission (dated May 23rd, 1914). Major William F. O'Grady is retired under the provisions of Paragraph 116 of the Territorial Force Regulations, and is granted permission to retain his rank and to wear the prescribed uniform (dated May 27th, 1914).

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the following officers:—

Royal Army Medical Corps.

1st London (City of London) Sanitary Company, Royal Army Medical Corps: Major Lewis Thomas Fraser Bryett.

1st London Clearing Hospital, Royal Army Medical Corps: Lieutenant-Colonel Alexander Barclay Lyon.

Attached to Units other than Medical Units.—Major Andrew Robertson Wilson, attached to the 4th Battalion, The Cheshire Regiment. Major William Doig, attached to the 4th (The Border) Battalion, The King's Own Scottish Borderers. Captain William Turnbull Barrie, attached to the 4th (The Border) Battalion, The King's Own Scottish Borderers.

FIELD SERVICE NOTES FOR R.A.M.C.

Messrs. John Bale, Sons, and Danielsson have issued a list of amendments to "Field Service Notes for R.A.M.C.," by Major T. H. Goodwin, R.A.M.C., in order to ensure that all details as to personnel and equipment and also the marginal references to official publications may be in accordance with the latest editions of "War Establishments" and the "Field Service Manual." The amendments are published separately, price 4*d*.

BRITISH HOSPITAL FOR MOTHERS AND BABIES.—The Charity Commissioners have issued the draft of their scheme for the consolidation and future regulation of the charities hitherto known respectively as the British Lying-in Hospital, Endell-street, W.C., and the Home for Mothers and Babies, Woolwich. The new title of the consolidated charities is to be "The British Hospital for Mothers and Babies," and the ultimate object is declared to be "the establishment and maintenance in the metropolitan borough of Woolwich of a maternity hospital and school for the higher training of midwives." The scheme gives authority for the sale or continued letting of the old premises of the Lying-in Hospital in Endell-street and Nurses' Home in Betterton-street, Long Acre, and empowers the trustees to acquire a site in the borough of Woolwich for the proposed hospital and school and to erect thereon suitable buildings, the cost to be provided, so far as may be, out of subscriptions or grants received by the trustees, and as to the balance out of the funds of the charity. Pending the establishment of the said hospital and school the trustees may carry on, at the cost of the charity, the Home for Mothers and Babies at the premises in Wood-street, Woolwich, where it has hitherto been conducted, or at other suitable buildings in the same borough.

FOURTEENTH FRENCH CONGRESS OF MEDICINE.—This Congress will take place at Brussels from Sept. 30th to Oct. 4th this year at the Palais des Académies under the patronage of the King and Queen of the Belgians. The committee of honour, of which Professor Stiénon, of Brussels, is president, consists of 22 eminent professors. The following subjects are down for discussion: Syphilis of the Cardio-vascular System; Lipoids in Pathology; the Therapeutic Value of Artificial Pneumothorax; and Vaccinotherapy, especially in relation to typhoid fever and cancer. Among the reporters who have promised to attend are Professor Vaquez, Professor Vincent, and Professor Chantemesse, of Paris; Professor Spielmann and Professor Haushalter, of Nancy; Professor Burnand, of Leysin, and many Brussels professors. Many non-French nationalities will also be represented. The detailed programme of work and entertainments will shortly be issued. Subscriptions (20 francs) can now be received, and should be addressed to Dr. Godart-Dantrieux, 9a, rue Montoyer, Brussels. Ladies accompanying members and also students of medicine will be admitted as associate members for 10 francs. Members desiring to contribute papers must communicate before Sept. 1st with Professor René Verhoogen, general secretary of the organising committee, 22, rue Joseph II., Brussels.

Home and Foreign Notes.

(FROM OUR OWN CORRESPONDENTS.)

MANCHESTER.

Furnished Houses for the Very Poor.

THE corporation has approved of a scheme by its sanitary committee to provide as an experiment, subject to the permission of the Local Government Board, a three-storey block of furnished rooms in Rochdale-road for the use of the very poor. The cost will be £8973, and the annual sum for interest and sinking fund is £366. There will be 12 two-room "houses" at 6s. 6*d*. per week, and 30 one-room at 5s. 3*d*. per week. The estimated net income is £310, leaving £56 to be provided by the rates. Each house will have a living room 15 ft. by 13 ft., with a bed recess 6 ft. 6 in. by 4 ft. 6 in., having a window in an outside wall, a ventilated food cupboard, a ventilated wardrobe, and a projecting window with a permanent seat. There will be an adjacent small scullery with a sink, and a water-closet entered from the outside. The two-roomed houses have in addition a bedroom 14 ft. 9 in. by 9 ft. 9 in. The furniture for each double room is estimated to cost £7, and £5 for each single-roomed house. The articles provided will be a bedstead, mattress, pillows, blankets, chairs, crockery, and a table. The floors will be of concrete, the interior walls will have a good hard plaster finish, and all crevices will be filled up to make the building vermin-proof.

A Conference on Town Planning: Back-to-back Houses.

At a two days' conference held in Manchester on May 14th and 15th about 200 representatives of local authorities of Lancashire and adjacent counties met to discuss the practical administration of the Town Planning Act of 1909. In Manchester much had been done in improving housing conditions without waiting for the Town Planning Act. In fact, the housing conditions have been entirely changed during the last decade. The city council has already provided homes for over 4000 families and lodgings for over 700 people. Over 10,000 back-to-back houses have been demolished or converted to a more sanitary type of dwelling. There are now only 100 back-to-back houses in the city, and these will shortly be abolished or changed.

One Poor-law Union for Manchester.

At present there are three Poor-law unions in Manchester and each has a different rate, and the rate is heaviest in the poorest union and lightest in the richest. As a result of a recent Local Government Board inquiry, from the end of March next year there will be only one Poor-law authority for the whole of Manchester, and the new Poor-law union will be one of the largest in the country.

Flannelette and Inflammable Clothing.

The number of deaths amongst children in Manchester from burns average two per week, and these are due, in Dr. James Niven's opinion, largely to the use of flannelette. The sanitary authorities have decided, under the Fabrics Misdescription Act, to institute legal proceedings against any retailer selling inflammable flannelette as non-inflammable. Retailers, therefore, should obtain a warranty of non-inflammability from the maker or vendor. The purchaser is entitled to demand that the article be tested.

The Radium Fund for Manchester.

I referred in previous letters[1] to the scheme for providing radium for use in Manchester. In addition to the £4584 already promised, the Right Hon. Sir William Mather has promised £1000, Mr. Edward Hopkinson £100, and Mr. Laurence Pilkington £100. Also Bury is seeking to raise £2000, of which over £600 have been promised. A scale of charges for use of the radium will be so adjusted as to secure that the scheme when at work shall be self-supporting. As far as accommodation at the Royal Infirmary will allow, not only will patients sent from the other hospitals be treated, but also private patients sent by medical men. The radium committee will have power to admit to participation in the benefits of the scheme other hospitals, bodies, and persons, in addition to the hospitals named in the scheme.

Probable Settlement of the Doctors' "Strike" in Burnley Union.

Over 16 months ago the nine Poor-law medical officers of the Burnley union resigned on account of inadequate salary. Since then the board of guardians has been able to secure the services of only three medical officers to do the entire work of the union. It has now been decided to divide the union into 12 medical relief districts at a total remuneration of £505 a year, with extras, as compared with £365 two years ago. The nine resigned medical officers will be offered districts.

May 26th.

SCOTLAND.

Medical Inspection and Treatment of School Children in Scotland.

THE recently issued report of the Committee of the Privy Council on Education in Scotland deals to a certain extent with the question of medical inspection, and gives evidence of the progress which has been made during the last few years. Of the immediate perceptible results of the school medical officers' first visits, perhaps the most obvious consists in the more ready appreciation by school authorities of shortcomings in the premises under their charge in regard to such ordinary matters as the ventilation, lighting, heating, and cleaning of classrooms, the pattern of the desks, and, especially in rural schools, the condition of the school offices and the supply of drinking water. A large number of managers in country districts realise the culpable folly of neglecting to make any arrangement whatever for the midday meal of those children who live too far from school to go home for dinner, for which purpose school boards now have ample powers. The committee believe that personal cleanliness is on the increase, and greater attention is given to such plain matters of hygiene as the proper cleaning of the teeth. Regarding medical treatment the committee state that the returns showed a considerable variety in the methods of administration. The majority of school boards realising that to deal systematically with the entire range of ailments would have exceeded their resources, after surveying the whole needs of their district in the light of the school medical officer's report, and taking stock of the existing facilities for meeting those needs, concentrated their attention on some special class or classes of defects—for example, of the eyes or the teeth—in the thorough treatment of which it seemed that the

[1] THE LANCET, April 25th, p. 1211, and May 9th, p. 1351.

money could be most effectively applied. In the larger towns and cities, where the number of cases involved action on a large scale, clinics were established and supplied with the staff and apparatus required for the particular forms of treatment to be undertaken. Many of the lesser school boards have found their best course to lie in an arrangement with the authorities of the local hospital or dispensary, who undertake all or part of the treatment, and are usually paid by the school board according to the number of cases sent to them.

Summer Post-graduate Courses in Edinburgh.

As I announced some months ago post-graduate courses will be held in Edinburgh during the months of July, August, and September, and particulars may be had from the secretary, the Faculty Office, University New Buildings. The University Union will be open during the months of August and September, and gentlemen attending the courses will be eligible for temporary membership. During the September courses accommodation and board may be had in one of the residences of the University Hall. During the last fortnight of July courses will be given on diseases and defects of children and on obstetrics and gynæcology. The course on internal medicine will extend from Monday, August 3rd, to Friday, August 28th, inclusive. The last courses will extend from Monday, August 31st, to Friday, Sept. 25th inclusive.

Dundee Hospital Burned Down.

A new hospital for women in Dundee, which was on the point of completion, was partially destroyed by fire in the early morning of May 22nd. The hospital was to have been opened next week. The damage is estimated at some £2000 or possibly more. The hospital, a two-storeyed building, was erected through the liberality of a number of leading citizens, and was designed to take the place of the present hospital for women in Seafield-road, which falls to be vacated next week. The new hospital was begun nearly two years ago, and every effort was being made to get it ready for occupation. It is generally assumed that the fire was the work of suffragists. Messages such as are common in other incidents of the kind were found. It is believed that six months will be required to get the damage repaired, and although the numbers at the old hospital were being kept down with a view to the removing from one premises to the other, it is probable that temporary accommodation will have to be provided. Fortunately the loss is covered by insurance.

Accommodation for Sick Children in Dundee.

The directors of the Royal Infirmary, Dundee, have intimated that they have decided to set aside a second ward of 30 beds for sick children, thus doubling the present accommodation. This will not in any way interfere with the accommodation for adults. It is hoped that the new ward will be ready in early autumn, when the new nurses' home, which is being erected, will be completed. The arrangement is by no means regarded as final or adequate, but until the movement for a children's hospital in Dundee takes definite shape it seems the best that can be made.

The late Dr. Alexander S. Jameson.

The death occurred at Batavia, Java, on May 17th, of Dr. Alexander Seymour Jameson, son of the late Mr. John Jameson, Powis Lodge, Old Aberdeen. Dr. Jameson was educated at Aberdeen Grammar School, King's College and Marischal College, Aberdeen, graduating M.A. in 1882 and M.B., C.M. in 1886. For eight years he practised in Ellon, and afterwards was for 13 years in practice in Stockton-on-Tees. Some time ago he fell into bad health, and died during a sea voyage to the Far East. Dr. Jameson is survived by his widow and by a family of one son and two daughters.

May 28th.

IRELAND.

The Insurance Act Certification Question.

AN important correspondence between Mr. M. R. J. Hayes, medical secretary of the Irish Medical Committee, and the Irish Insurance Commission has been published. It begins in March, at a time when the conversations which are said to have taken place between the Committee and the Commission came to a stop, owing, it is supposed, to the pressure exerted by the society officials on the Commission in favour of the appointment of medical men as whole-time certifiers. In a letter dated March 25th Mr. Hayes, on behalf of the Irish Medical Committee, informed the Commission that the profession would be willing to carry out certification gratuitously, say, up to June 30th, conditionally on the system of certification by medical advisers being abolished. Mr. Hayes also stated that the Irish Medical Committee had consented to medical men remaining on the panel up to June 30th. This letter received a bare acknowledgment. On May 18th Mr. Hayes asked whether the Commission had yet completed any scheme for dealing with the question, and expressed disappointment that no notice had been taken of the offer of the profession. The secretary of the Commission replied that "proposals for placing certification arrangements in Ireland on a permanent basis are still engaging the attention of the Commission." The Irish Medical Committee has summoned a meeting of delegates from all the county areas to meet in Dublin next Tuesday, June 2nd, to decide on the future policy of the profession. It is believed that the society officials have demanded that certification should be carried out by paid officers of the Insurance Commission, to the exclusion of the medical attendants of the members. Such a policy would rouse the bitter hostility of the profession, and if carried into effect would, like the present system of certification by medical advisers, lead to gross injustice to the insured. Following the meeting of delegates next Tuesday will be a mass meeting of the profession to protest against any system of certification other than by the medical attendant. I am requested to add that at its last meeting the Irish Medical Committee unanimously passed a resolution thanking Dr. C. Addison, M.P., on behalf of the medical profession of Ireland, for his exertions in trying to bring about a settlement of the certification question.

The Irish Medical Association.

The annual meeting of the Irish Medical Association will be held in Dublin on Wednesday, June 3rd, under the presidency of Dr. F. W. Kidd. The annual report shows that the affairs of the association are in a fairly satisfactory state. The membership on Dec. 31st, 1913, was 654. This number has since largely increased owing to the new journal arrangements made by the council. The accounts showed on Dec. 31st a credit balance of £461 16*s.* 5*d.*, and a surplus on the balance-sheet of £819 19*s.* 5*d.*

Vaccination in Belfast.

A convincing statement has been sent to the Belfast board of guardians from the council of the Ulster Medical Society and from the executive committee of the British Medical Association (Belfast division) in reference to the campaign now being conducted in Belfast against vaccination. Details of local experience and of great importance are given. In the last outbreak of small-pox in Belfast (1904–05) out of 178 cases there were 9 deaths. Of those attacked, 146 had been vaccinated and 2 of them died, while of 32 who had never been vaccinated 7 died. Thus, 1 out of every 5 unvaccinated people who contracted small-pox died, while of every 73 vaccinated only one succumbed. There was not a single case of small-pox in a revaccinated person. Moreover, the medical superintendent of the Belfast Fever Hospital, whose experience extends over 20 years and covers six outbreaks, has never had a case of small-pox in a revaccinated person.

The late Mr. Harry Chestnut.

The tragic death of Mr. Harry Chestnut, of Tralee, has aroused sympathy not only in Kerry but throughout Munster, and wherever he or his family is known. He had been attending several members of a family suffering from septic sore-throats. The mother of the family was affected and had a high temperature. On visiting her in response to an urgent summons he found her bleeding profusely from an incomplete abortion. Having received no intimation of the abortion he was unprepared with gloves, but at once evacuated the uterus with his bare hand, and thus himself got a septic infection of his left forefinger. Realising the serious nature of his condition he consulted one of his colleagues in Tralee and soon after went to the South Infirmary, Cork. In spite of the unremitting care and skill of the staff the infection became general. For three weeks he made a gallant but fruitless fight, for he died on May 21st in the forty-fifth year of his age. Mr. Chestnut was a native of Tralee, the fourth son of the Rev. William Chestnut, minister of the Tralee Presbyterian Congregation. He studied in Cork, Galway, and Edinburgh, and qualified in 1891. Settling down to practise in his native town he soon earned the confidence and esteem of the entire community. He was most conscientious in the discharge of his duties, and spared no pains to keep himself abreast of the times in his work. His professional aid was sought far and wide over Kerry and the adjacent counties. The funeral took place on May 23rd, at which thousands of all creeds and classes attended.

May 28th.

PARIS.

Sentence on "Dr." Macaura.

I HAVE referred previously to the action against "Dr." Macaura, who for two years, by means of extensive advertising and public meetings, exploited an apparatus of his own invention, manufactured in Germany and sold for ten times its intrinsic value, which was to cure all diseases without exception. Judgment in the case has now been given by the Ninth Chamber of Correction, after 27 sittings, condemning him to three years' imprisonment and a fine of 3000 francs.[1] It is true that he left France a long time ago, but 11 persons were included in the action for complicity, among whom are a few medical men who lent themselves to the sale of the apparatus in the Macaura establishments of Paris and the provinces. There was even one who, from an assiduously cultivated personal resemblance, personated Macaura himself and procured for that person a reputation for ubiquity. There was also a Dr. Hacks, whose career was a remarkably mobile one, for he appears to have been successively a pantomime dancer, a ship's surgeon, a publisher of scandalous books, manager of a restaurant, and finally Macaura's secretary. He was condemned to six months' imprisonment and a fine of 500 francs. Another, one Rollinson, was condemned by default to one year in prison and a fine of 500 francs. The others received sentences varying from three to two months' imprisonment and fines of from 500 to 100 francs. Only one, Dr. Prébant, was acquitted.

[1] THE LANCET, May 23rd, p. 1511.

Indemnity for Damages due to X Ray Treatment.

Radiologists particularly have been the victims of actions by patients for accidents arising out of treatment, or for failure to cure. Recently a medical man was condemned to pay 18,000 francs damages to a woman who claimed 100,000 francs for a radiodermatitis which caused indelible cicatrices, due to the use of the X rays for removing superfluous hair from the upper lip. The considerations underlying the judgment are of interest, in that they admit the responsibility of the medical man only because the condition calling for treatment was trivial, and the risk far exceeded the possible benefit.

The Congress of Practitioners.

The biennial Congress of Practitioners is being held in Paris this week. It is more numerously attended than ever before, over 800 members being present. The reason for this large gathering is to be found in a certain disquietude among the medical profession at the pretensions of the national and municipal administrations which aim more and more to bring about important reforms, most often from political motives, and to impress the aid of the medical practitioner as a compulsory and unremunerated assistant in the exercise of these undertakings. The situation for many practitioners, especially those in the country, tends to become an intolerable servitude. The medical man certainly would never refuse his coöperation in the application of measures of public health and assistance in which he knows that his services are indispensable. He demands merely to have the effective direction of those services which are placed under his responsibility, or if such control must be kept in the hands of the lay administration and he must consequently play the part of an employee, then he demands to be treated as an employee—that is to say, to receive remuneration and to be the object of certain consideration. Such is the general attitude of the Congress, of which the resolutions—which cannot yet be sent for publication—have a certain importance, for there exists in Parliament a sufficiently large number of medical men, both Deputies and Senators, who rely upon the votes of the medical profession to bring pressure on the Government.

Portable Laboratories for the Army.

The Minister of War has determined on the creation of a special type of laboratory apparatus, enclosed in chests and intended for transportation in case of epidemics in small garrisons remote from an important hospital furnished with the necessary means, to be put at the disposal of specialists,

particularly bacteriologists, when these are sent on a mission by the Ministry to study on the spot the causes of an epidemic and the proper methods for its prevention.

May 25th.

BERLIN.

Congress of the German Roentgen Society.

AT the Congress of the German Roentgen Society, held recently in Berlin under the presidency of Professor Levy Dorn, Professor Krause, of Bonn, read a paper on the biological action of the rays on normal animal tissue. He said that short exposures had an irritating influence on the cells, moderate exposures an inhibiting, and prolonged exposures a destructive influence, the young proliferous cells being especially liable to injury. The hypothesis that the rays produced a decomposition of lecithin into cholin was not yet substantiated. Dr. Reifferscheid, of Bonn, speaking on the influence of the rays on the ovaries, said that experiments which he had made showed that prolonged exposures produced a degeneration of the follicles and hæmorrhage in the ovaries, and that regeneration did not occur. Professor Wichmann, of Hamburg, discussed the Roentgen ray treatment of cancer, saying that in the case of growths in which the Roentgen rays had proved unsuccessful, treatment by means of other rays had sometimes resulted in recovery; the rays did not act at a depth of over 2 centimetres. In the discussion the views expressed by the speakers were far from being unanimous, as some were of opinion that operable cases ought first to be operated on and the Roentgen rays employed only at a later stage as a prophylactic against relapse, whilst others advocated a combined treatment, and others an exclusive treatment by Roentgen or radium rays. Dr. Schmidt, of Berlin, reported that he had treated 100 cases of furunculosis by the Roentgen rays without one unsuccessful case. A relapse had never been observed at the place where the rays had been applied. Dr. Eckstein, of Berlin, drew attention to the analgesic action of the rays which was still very little known. He said that analgesia was produced at once and lasted for a long time; this was especially obvious in cases of pain after operations and spastic conditions. Dr. Fritz Meyer reported good results in cases of chronic eczema and psoriasis. Dr. Hessel, of Kreuznach, described a method of obtaining a radiogram of the œsophagus; a piece of pig's intestine, the lower end of which was closed, was introduced into the patient's œsophagus and filled with bario-radiol by the open upper end. The piece of intestine could be drawn up when required by means of a thread attached to it. Dr. Schwarz, of Vienna, read a paper on the radiodiagnosis of pathological conditions of the colon. He said that chronic colitis was indicated by an increase of peristaltic contraction; in cancer an enema administered during radiographic examination was sometimes valuable for the diagnosis, as a growth either hindered the filling of the intestine or produced an interruption of the continuity of the filling substance. Dr. Graesner spoke on the subject of radiography of spina bifida occulta. He said that he had found this condition in about 70 per cent. of cases of nocturnal enuresis, and also in women suffering from prolapse of the vagina or uterus. Dr. Max Cohn read a paper on the radiographical examination of the appendix. He drew attention especially to the time of filling of the appendix and the time of evacuation of the bismuth emulsion. When after the evacuation residual bismuth was observed some pathological condition was present. Other papers were read before the congress on various physical and technological questions.

Antivaccinationists and the Legislature.

The antivaccination association has petitioned the Imperial Parliament to amend the existing laws concerning compulsory vaccination. It is especially desirous that a clause giving legal recognition to the "conscientious objector" after the British pattern should be enacted in this country, and that a mixed Commission consisting of supporters and of opponents of vaccination should be appointed to consider the whole subject. In the discussion a Socialist member alleged that since the recognition of "conscientious objection" London had remained free from an epidemic of small-pox and that it was more healthy than other cities in which vaccination was compulsory. Dr. Kirchner, the chief of the Government Medical Department, replied that as far back as 1911 the Imperial Parliament had declined to submit a similar petition to the Government for consideration; he asked whether thousands of children had perished since from vaccination or whether an epidemic had broken out. In the year 1913 only 19 cases of small-pox, with 12 deaths, had been notified. During the last 20 years no case of death from this cause had happened in the army. He then described the agitation worked up by the antivaccinationists, who distributed pamphlets in front of the premises where vaccination was performed, and who even induced parents to conceal their children from the vaccination authorities. Dr. Bumm, the President of the Imperial Health Office, said that the English clause concerning "conscientious objection" was a most unwise proceeding. In England in the first year after the introduction of that clause the proportion of unvaccinated children was only 5·8 per cent., but in 1908 the proportion rose to 18 per cent., and at the present time was about 40 per cent. He stated that when small-pox became prevalent in a town or district the objection at once disappeared and everybody wished to be vaccinated. This was observed in Metz at a time when some cases of small-pox had been observed, and many elderly people who had never before been vaccinated, asked quite of their own accord that they might be vaccinated now. The petition that an Imperial Commission consisting of supporters and of opponents of vaccination should be appointed was not agreed to, but a petition that the Government would consider the legal and scientific aspects of the vaccination laws was agreed to. It is noticeable that on this occasion the petitions were not summarily rejected by passing on to the order of the day as in previous years, but that the above decision was agreed to, a course which may be regarded as a kind of concession to the antivaccinationists.

May 25th.

MEETINGS OF CANADIAN MEDICAL SOCIETIES.—The Ontario Medical Association met in Toronto on May 26th, 27th, and 28th. The Ontario health officers met in annual convention in Toronto, May 7th and 8th. The Canadian Medical Association meets in St. John, N.B., on July 7th, 8th, 9th, and 10th. The Canadian Association for the Prevention of Tuberculosis will meet in Halifax, N.S., July 13th and 14th. The Fourth Annual Congress of the Canadian Public Health Association will be held in Fort William and Port Arthur, Ontario, Sept. 10th, 11th, and 12th.

Correspondence.

"Audi alteram partem."

THE PLEA FOR IMMEDIATE OPERATION IN APPENDICITIS.

To the Editor of THE LANCET.

SIR,—The point in connexion with the question of immediate operation in acute appendicitis that neither Mr. Edmund Owen nor his followers will see is that it is the application of their principle to all cases, no matter what the stage of the disease, that is responsible for the unsatisfactory results that still exist in connexion with surgical interference in the acute phase of this affection. What the profession has to grasp and surgeons have to recognise, is that when acute appendicitis has existed for three or four days, and the possibly perforated and even gangrenous appendix is surrounded by inflammatory adhesions or even pus, but is shut off from the general peritoneal cavity, then the patient has a better chance of recovery under local and palliative measures than by immediate operation. These are the cases which when operated on give the fatal results, and are the cause of that heavy mortality in acute appendicitis which we all deplore. No fault can be found, as regards the results, with the doctrine that immediate operation should be practised within the first few hours of an acute attack of appendicitis instead of using medicinal and other measures; but it is the teaching that the principle holds equally good in all cases, no matter what the stage of the disease, that I take exception to, because I feel it is fraught with great dangers.

I am, Sir yours faithfully,

Glasgow, May 23rd, 1914. GEORGE THOS. BEATSON.

MASSIVE COLLAPSE OF THE LUNGS.

To the Editor of THE LANCET.

SIR,—Exclusive diaphragmatic breathing is the inevitable consequence of experimental, accidental, or pathological absolute disablement of the spinal cord at a high level. It is sometimes temporary and remediable, as in transverse compression, hæmorrhage, or curable disease. When, however, it results from permanently destructive causes it is practically incompatible with a prolongation of life. This is due to the fact that the diaphragm is purely inspiratory. That exclusive type cannot be imitated in health by our "voluntary diaphragmatic breathing"; because in this the expiratory abdominal muscles paired with the diaphragm preserve both their tone, which ensures a rhythmic "passive" expiration by their elastic recoil and that of the abdominal gases, and also their rhythmic "active" contraction, if this should be required. So long as that disablement remains absolute, we have to deal with an unexampled crippling of the respiratory mechanism—namely, an active rhythmic inspiratory force—without any rhythmic expiratory force. There is still a steady "tensive" intra-abdominal pressure; but this can only favour expiration at the cost of opposing the inspiratory efforts of the diaphragm and of gradually wearing them out. The added evil is that the effective work of the diaphragm lies at the back; and that, in the inevitably dorsal decubitus, the weight of the body steadily opposes the expansion of the bases, which are at the time absolutely the only respiratory reserve, and hastens their massive collapse. That trouble might conceivably admit of some alleviation, if we could engineer for those cases a "respiratory bed," to rest the body upon three suitable air cushions: one along the spine, another across the upper thorax, and a third across the lower part of the trunk, thus relieving the posterior and lateral bases from all pressure. At best this would only be an instalment; but, to be of any use, it would brook no delay in its application.

Whenever, in cases not absolutely hopeless, a determined attempt at any life-saving surgical or medical treatment is contemplated, the first essential for success is an immediate resort to respiratory treatment, to preserve as much of the advantage from a still normal basic condition as can possibly be saved. Any continuously acting substitute for the lost abdominal tone, such as the prone decubitus or a light elastic abdominal belt, being out of the question, the main rational indication is to supply the missing rhythmic expiratory force. This leads to a second even more vital consideration. There seems to be no escape from the conclusion that, for any truly thorough treatment of that exclusive diaphragmatic breathing so long as it lasts, there can be no adequate alternative to the application of a rhythmic manual "artificial expiration," to be judiciously kept up day and night by a relay of highly competent hands, in analogy with the digital compression of arteries for hæmorrhage or aneurysm.

These clinical remarks, limited to the extreme fringe of the wide subject now under discussion in the columns of THE LANCET, are as much as I can dare ask space for; but they have some practical bearing upon the whole of it. The approved posture in the treatment of the local massive thoracic and pulmonary collapse and the abdominal atony of rickets, of the respiratory urgencies (due to scattered lobular collapse) of broncho-pneumonia and of whooping-cough, and of many analogous instances of disablement by collapse, including phthisis, is still exclusively dorsal. I need therefore only renew the old plea for some revision of the therapeutical question, and for some wider clinical recognition of the practical uses of the prone decubitus, and of its abdominal factors, in the light of the anatomy and physiology of the respiration and of the circulation.

I am, Sir, yours faithfully,

Upper Brook-street, W., May 25th, 1914. WILLIAM EWART.

RE-EDUCATION OF THE DEAF.

To the Editor of THE LANCET.

SIR,—I have read with interest Mr. Richard Lake's paper in THE LANCET of May 23rd, but my experience, so far as it goes, leads me to think that he has formed an unduly pessimistic view of the value of auditory re-education.

I have recently obtained one of the instruments designed by M. Zünd Burguet. I did so for two reasons: first, because I had read in French journals reports of cases which had been remarkably benefited by the treatment: and secondly, because I had myself spoken to one or two patients who had been treated by this method and who felt themselves greatly benefited.

I have, of course, hitherto carefully refrained from recommending or using the treatment in the case of any patient where the question of a fee entered until such time as I was convinced of its

value, and so far I am using it only in the case of personal friends or in hospital patients, and I have obtained improvement in the majority of these cases. The improvement, I am convinced, is more than can be accounted for by suggestion or by the optimism engendered in the deaf by any new form of treatment. What proportion of cases will respond and how long the improvement will last remains to be seen. The disadvantages of the treatment, especially in the present state of our knowledge regarding it, are: (1) that a considerable number of séances must be given before we can judge whether it will be of service or not; and (2) that the resulting improvement is not claimed to be permanent. While recognising these points, however, it must be remembered that there is no other known method of treatment which is of the least value in the forms of deafness for which auditory re-education is employed. There is no *a priori* reason why the method should necessarily fail in such cases, and, as apparently good results have been obtained by its use, I submit we should not condemn it without careful trial.

I observe that Mr. Lake speaks of using an instrument different from that issued by Zünd Burguet. Whether Zünd Burguet's instrument differs materially from that used by Mr. Lake I cannot say, but if it does it seems hardly fair from a trial of one variety of instrument to condemn the whole principle as of no value. I understand that Zünd Burguet does not recommend his treatment in congenital deaf-mutes. It is interesting to note that this is the only class of case in which Mr. Lake has obtained any benefit.

I hope when sufficient time has elapsed to enable me to come to a conclusion with regard to this treatment to publish my results in full.

I am, Sir, yours faithfully,

Edinburgh, May 25th, 1914. W. G. PORTER.

THE ABDERHALDEN TEST FOR PREGNANCY AND THE COMMENCEMENT OF GESTATION.

To the Editor of THE LANCET.

SIR,—In the *Edinburgh Medical Journal* for January of this year I endeavoured to prove from clinical facts that in the human female fertilisation may take place at any time during an intermenstrual epoch except during the three days prior to menstruation, and that gestation invariably starts during the three days preceding the first suspended menstruation of pregnancy. Hitherto, as I have already on many occasions observed, no person, either medical or lay, has been justified in suspecting the occurrence of impregnation until and unless a menstrual period has been missed. Because of a lack of more precise data embryologists as a matter of course have been content to reckon the age of every human embryo from the date of the cessation of the last menstrual discharge, as though fertilisation and gestation were not only coequivalent embryological terms, but as though the ovum was invariably fertilised soon after a menstrual period, and was always the ovum belonging to a past menstruation. Embryologists refer to the state of development of the human ovum during the so-called different stages in terms like the following: "In the beginning of the third week a fifth stage is reached"[1]; "About the middle of the third week, that is to say, about 16 or 18 days after the fertilisation of the ovum, various parts of the embryo are becoming rapidly differentiated."[2] From statements of this character one would naturally infer that not only is the fertilisation time definitely settled, but that fertilisation and gestation are essentially coequal phenomena. This, in my opinion, is quite a fallacy. I maintain that gestation, like incubation, is synonymous with vitalisation. It is very evident that the fertilised seed, whether vegetal or animal, is merely endowed with the power of life and is of itself powerless to start its own life. The grain of wheat which has lain dormant in the Pharaohs' tombs for thousands of years possessed during all these years the power of life, but did not display life until activated by favourable external influences. Regarding even the time when the placenta begins to form and when it is fully developed—not, of course, fully grown—our knowledge is most unsatisfactory.

Now in dealing with the defensive ferments of our bodies Abderhalden refers in the following terms to a ferment of pregnancy: "Many of our researches," he says, "and those of various observers have shown that during the whole period of pregnancy defensive ferments circulate in the blood which are able to reduce placenta albumin. These defensive ferments may be demonstrated within about eight days after impregnation."[3] Biologists everywhere must hail with satisfaction this pronouncement of the existence of a ferment peculiar to pregnancy, and if this test for pregnancy is as reliable as Abderhalden and many other authorities allege, then assuredly little or no difficulty should be experienced in settling whether the ovum which is fertilised is that of a past or of an oncoming menstruation, and whether fertilisation and gestation are to be looked upon as synchronous phenomena. The new light thus thrown upon the development of the human embryo may call for radical alterations in our text-books on embryology, but it must never be forgotten that it is the duty of science to unearth the truth.

I am, Sir, yours faithfully,

JAMES OLIVER, M.D., F.R.S. Edin.

Harley-street, W., May 23rd, 1914.

[1] Human Embryology and Morphology, Keith, 1913 edition, p. 15.

[2] Ibid., p. 16.

[3] Defensive Ferments of the Animal Organism, English translation, 1914, p. 93 et seq.

PHAGOCYTIC TREATMENT OF DISEASES OF THE EYE AND EAR.

To the Editor of THE LANCET.

SIR,—May I draw the attention of your readers to the following case? It is one out of many striking cases in my experience in which I have found that the ordinary treatments of eye and ear inflammatory affections were strongly reinforced by the phagocytic action of nuclein, a remedy which does not seem to be known as well as it deserves.

Miss A. B., aged about 65 years, came to me with a large corneal ulcer which seemed upon the point of perforation. She had suffered from it without treatment for about a fortnight. There was severe keratitis over the whole cornea, and hypopyon, filling about one-third of the anterior chamber. The patient was of a highly nervous disposition, and refused to allow either paracentesis or application of the cautery. I had therefore to rely on medicinal treatment by means of a protective bandage, antiseptic lotions, and instillation of eserine drops to lessen the danger of prolapse of the iris if the perforation, which seemed imminent, should occur. In addition I ordered the patient to take two capsules, each containing 2 grs. of nuclein (supplied by Parke, Davis, and Co.), three

times a day. The result was surprising. Perforation did not occur. After a couple of days the ulcer began to clear and heal. The keratitis gradually cleared up, the hypopyon absorbed, and at the end of about a fortnight the ulcer had healed, leaving the cornea clear, with the exception of a dense leucoma on the site of the ulcer. From the bad condition of the eye when I first saw it I have no doubt that the ulcer would have progressed and perforated but for the action of the nuclein.

This is but one case of many in which I have found nuclein of decided benefit. If taken in time it aborts styes, boils, acne pustules, acute otitis, coryza, influenza, enlarged glands, gingivitis, incipient dental abscess, &c. Even when suppuration has occurred it frequently happens that, under the action of nuclein, the inflammation subsides and the pus absorbs. It has a beneficial action on keratitis, iritis, dacrocystitis, and, in a lesser degree, on conjunctivitis and chronic middle-ear disease.

Nuclein is said to be the chief constituent of the nuclei of cells. It is a complex proteid body containing a large amount of phosphorus in the form of nucleinic acid which is combined with a highly complex basic substance. For medicinal purposes it is prepared from yeast and acts by largely increasing the number of leucocytes in the blood and thus increasing the disease-resisting powers of the body. By the increased number and activity of the leucocytes certain pathogenic micro-organisms are more rapidly destroyed.

Hahn[1] of Munich has shown that nuclein can double the number of leucocytes in a short time, while von Mayer[2] has observed an increase of over 75 per cent. Hahn found also that defibrinated blood from an animal under the influence of nuclein had a greater bactericidal effect upon staphylococcus pyogenes aureus and upon bacillus coli than normal blood from the same animal. Vaughan[3] found that injections of nuclein protected animals against virulent cultures of the diplococcus of pneumonia and that, by the same means, he could render rabbits immune to the tubercle bacillus.

Other observers have recorded its effect in improving general nutrition and increasing resistance to pathogenic germs. Good results have been reported in pneumonia,[4] typhoid fever,[5] cholera,[6] septicæmia,[7] puerperal fever,[8] scrofula,[9] carbuncle,[10] tonsillitis, tuberculosis,[11] indolent ulcers, general debility, &c. Miculicz-Radecki,[12] Renner,[13] Hannes,[14] and Chantemesse[15] have recommended nuclein as a prophylactic against septicæmia after operations. Renner reported that in Miculicz's clinic the mortality in abdominal sections fell under nuclein prophylactic treatment from 31 to 11 per cent. Achard and Redfield[16] found it useful as a surgical dressing. I know myself that there is much more rapid healing of operation wounds and less danger of sepsis if nuclein be administered.

A more powerful preparation for phagogenic treatment is the mycolysin of Dr. Doyen, of Paris. This is stated by Doyen to be "a preparation of phagogenic colloids extracted from a certain number of natural ferments," and has an even more powerful effect than nuclein in producing increased phagocytosis. Its expensiveness, however, precludes it from use in many cases. It is sold in three forms—viz., liquid mycolysin, an agreeable but expensive preparation; extract of mycolysin, cheaper but less palatable; and mycolysin injection for hypodermic use in grave cases. These remedies, nuclein and mycolysin, deserve more extended use than they have hitherto enjoyed in these islands. Nuclein is largely used in America and mycolysin in France, but here both seem to be practically unknown to the profession.

I am, Sir, yours faithfully,

JOHN P. HENRY, M.D., B.Ch. Dub.

Galway, May 25th, 1914.

[1] Berliner Klinische Wochenschrift, 1896.
[2] Deutsche Medicinische Wochenschrift, 1898.
[3] Medical News, 1894.
[4] Therapeutical Notes, 1896. [5] Ibid.
[6] Indian Medical Gazette, 1905.
[7] Medical News, 1897. [8] Therapeutical Gazette, 1897.
[9] Medical Times, 1897. [10] Merck's Archiv, 1903.
[11] Medical News, 1897; Medical World, 1906; Texas Medical Journal, 1910; Boston Medical and Surgical Journal, 1911.
[12] West London Medical Journal, 1904.
[13] Scottish Medical and Surgical Journal, 1906.
[14] Centralblat für Gynäkologie, 1906.
[15] Brit. Med. Jour., 1907.
[16] New York Medical Journal, 1911.

CONGENITAL DEFECT OF THE ULNA.

To the Editor of THE LANCET.

SIR,—In THE LANCET of May 23rd I see my friend Mr. Paul Roth describes a case of congenital defect of the ulna, and suggests passive movement, a splint at nights, and possibly an operation. I, too, have been troubled with this rare complaint, but owing to my determination to persist with outdoor games, such as tennis, great hypertrophy of the wrist tendons and carpal bones has ensued and greatly relieved the condition—in fact, cured it for all practical purposes. Active movements, therefore, seem the most promising line of treatment. I should be glad to hear from any of your readers who have had practical experience of this complaint.

I am, Sir, yours faithfully,

ARTHUR G. WILKINS, M.B. Vict.

Glenridding-on-Ullswater, Penrith, May 23rd, 1914.

THYROID EXTRACT IN NERVOUS DISORDERS.

To the Editor of THE LANCET.

SIR,—The subject of thyroid therapy is one that has interested me deeply for some time past, and I should be glad to have the opinion of other readers of THE LANCET upon certain cases in which I have prescribed thyroid extract with favourable results.

Recently I was called in to attend a girl of about 7 years of age. She was quite unable to stand, and had extensive paresis of the muscles of the left arm, whilst the muscles of the back appeared to be very weak. I elicited the information from her mother that a few weeks previously the child and her sister had sore-throats, which the doctor in attendance regarded for a time as diphtheritic. There was complete absence of patellar, wrist, and elbow reflexes, and the legs and left arm appeared to be flaccid and useless. The child when placed on her feet simply collapsed on the floor. The weakness had been noticeable for about 14 days, and had come on gradually. Induced by the powerful effect of thyroid extract in clearing up certain sequelæ of diseases of toxic origin I determined to try it in this case. The result is that the child is now, after a period of five weeks, able to walk without assistance and has improved physically in a remarkable degree. I prescribed 1 grain daily of thyroid extract, with 45 minims of syrupus calcii lactophosphatis, three times daily. I have never known a case of diphtheritic paralysis so advanced to clear up in so short a time, and have not seen any records of the use of thyroid extract in this condition.

Another condition in which this remedy has

marked beneficial effects, and which has been referred to by several writers, particularly Dr. Leonard Williams, is noctural enuresis in children. In many such cases, notably those showing rickety characteristics, a very disagreeable concomitant is excessive blinking of the eyelids. In two cases in which I employed thyroid extract in conjunction with syrupus calcii lactophosphatis this symptom disappeared in a few days, and in one of these, in which the remedy was withheld for a few weeks, the blinking reappeared only to disappear once more under the renewed administration of the drug. Post-diphtheritic paralysis is held to be due to a peripheral neuritis of toxic origin. Probably the blinking is a reflex action set up by some irritation of the nerve-endings in the conjunctiva, and is, therefore, a parallel condition.

I am, Sir, yours faithfully,

CHARLES W. CRAWSHAW, M.B., D.P.H. Vict.,

Low Wood, Green Mount, near Bury, May 22nd, 1914.

EPIDEMIC JAUNDICE AMONG SCHOOL CHILDREN.

To the Editor of THE LANCET.

SIR,—The annotation in THE LANCET of April 4th, under the above heading on the observations of Dr. Cameron R. Gibson in the March number of *Public Health*, has aroused my curiosity to a degree that I would fain ask the following questions: 1. At the time of the outbreak of epidemic jaundice was typhoid fever in endemic or epidemic form in the same district? 2. Were the stools of the cases examined or a blood-test made (Widal's reaction)? 3. Were there prevalent at the time any allied gastro-intestinal affections, such as paratyphoid, influenza with enteric symptoms, dysenteric diarrhœa, gastro-enteritis, and stubborn dyspepsias? 4. Have any of the jaundice cases been examined since their attack with a view to know if they are carriers or not?

My experience of epidemic jaundice is that one form at least is closely allied to typhoid fever, due probably to a direct invasion of bile-ducts and gall-bladder from the intestinal tract. If we keep in mind the direct continuity of the mucous lining of the one with the other, the inference of direct invasion is reasonable and natural. If in a house there appears an outbreak of typhoid fever, there also I expect one or more cases of jaundice; moreover, the appearance of jaundice causes an abortion of the typhoid syndrome. There is a direct statistical relation between epidemic jaundice and typhoid outbreaks; they increase and wane together, the tide is at its height in autumn and commencing winter, depending chiefly on the pollution of surface water. I consider many cases of gall-stone and cholecystitis can date their commencement from an attack of catarrhal jaundice or a catarrhal state of biliary system hardly sufficient to cause jaundice, due, in my opinion, to direct invasion by Eberth's bacillus from the intestinal tract.

I am, Sir, yours faithfully,

Argentina, April 29th, 1914. M. A. I.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—There are five vacancies on the Council of the College, which will be filled at the annual meeting of the Fellows on Thursday, July 2nd. Nominations of candidates for these vacancies must be received by the Secretary of the College not later than Friday, June 5th next. A voting paper for the election will be sent to every Fellow whose address in the United Kingdom is registered at the College on June 16th.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

TUESDAY, MAY 26TH.

THE General Council of Medical Education and Registration began its summer session to-day at its offices, 299, Oxford-street, W. Sir DONALD MACALISTER, the President, was in the chair.

New Member.

Sir Lambert Hepenstal Ormsby, F.R.C.S. Irel. (introduced by Sir Henry Morris), took his seat on the Council as representative of the Royal College of Surgeons in Ireland for one year from Feb. 5th, 1914.

President's Address.

The PRESIDENT then delivered his address. He said: The severe illness which prevented me from attending the Council and delivering my customary address last November has enabled me to apprehend more clearly than before two facts of importance. One is that in a time of weakness I may count securely on your active support and sympathy; for this gratifying experience I thank you all from my heart. The other is that when the President is away the Council carries on its work as efficiently as ever; this experience is also most salutary—for the President.

Let me express my deep personal gratitude to the senior treasurer, Mr. Tomes, for undertaking the responsibilities and performing with such acceptance the duties that are incident on the chair; to Dr. Norman Moore and the other chairmen of Standing Committees for their readiness to lighten the acting President's burdens, and so to lessen my own; to Dr. Norman Walker for keeping me informed of the progress of the sessional business from day to day and for acting in many other ways as my helper in matters concerning the Council's interests; to all my colleagues for their most friendly encouragement and coöperation; and to the Registrar and his staff, without whose capable assistance I could not during my convalescence have carried out the various instructions conveyed to me under the resolutions of the Council. In view of all the valuable help extended to me, I venture to hope that the work of the Council will be found to have suffered no detriment from my temporary failure of health.

It falls to me to record with regret the deaths of two old and esteemed friends—Sir John Batty Tuke, who in 1912 retired after 25 years of office as a member of the Council; and Dr. P. H. Pye-Smith, for over six years (1901–07) one of our treasurers. I have also to note the retirement, since I last addressed you, of Dr. Lorrain Smith, consequent on his translation to a distinguished position in the University of Edinburgh; and of Sir Arthur Chance, on the completion of his last term of able service as representative of the Royal College of Surgeons of Ireland. On the other hand, I desire to offer a welcome to the new members—Dr. Elliot Smith from the University of Manchester, a former pupil of mine at Cambridge, of whose scientific eminence I am naturally proud; and Sir Lambert Ormsby, past President of the Irish College, who has already rendered assistance to the Council as one of its examiners in surgery. I would further take the opportunity of congratulating Sir Christopher Nixon on his admission to the Privy Council of Ireland, and of wishing him renewed health to enjoy that right honourable distinction.

Reciprocity under the Medical Act.

His Majesty in Council has issued Orders applying Part II. of the Medical Act (1886) to the Province of New Brunswick in the Dominion of Canada, and to the ancient colony of Newfoundland. In each case the Executive Committee has been satisfied that the educational and other requirements prescribed by law for the local qualification of practitioners are in accordance with the conditions desired by the Council. Under the powers given by your Standing Orders the committee has therefore intimated that practitioners possessing recognised qualifications granted in New Brunswick or Newfoundland, who produce the statutory evidence required under the Act, may be registered in the Colonial List of our Medical Register. Although Part II. of the Medical

Act (1886) has for many years been applied to India, no general law has yet been passed for the regulation of medical practice throughout the Indian Empire. The Council has, therefore, for purposes of recognition and registration, had to deal only with the curricula and degrees of the Indian universities severally. Graduates of these universities applying for registration here have not hitherto had to show, in the terms of the Act, that they were "by law entitled to practise" in any Indian presidency or province, for it appeared that the law imposed no restriction on the practice of anyone, qualified or unqualified. The Secretary of State for India has now informed the Council that legislation for the registration of medical practitioners, in terms similar to those of the Medical Acts, is now operative in the Bombay Presidency, and is contemplated in Madras and Bengal. Such legislation will doubtless be welcomed by the Council in the interest of the people of India, for it should tend to promote medical education in that country, and so to increase the efficiency of medical practice. The Council will be able to coöperate with the provincial governments, as the new legislation takes effect, by requiring Indian graduates applying for registration in the United Kingdom to show, as the Act directs, that they are "by law entitled to practise" in the "British possession" within which their qualifications have been granted.

The Council will remember that relations of reciprocity have also been established between this country and Japan. British qualifications are current in that Empire, and the Japanese degrees corresponding to Bachelor and Doctor of Medicine qualify for admission to the Foreign List of our Register. We have received an official intimation that the Japanese medical laws have now been extended to the Empire of Corea, and a further intimation that at present the only professional qualifications, other than Japanese, conferring a title to practise in Corea are those accepted for registration in the United Kingdom.

Election of Direct Representatives.—National Insurance Act.

The Bill, prepared in the Privy Council Office, for amending the existing provisions relating to the election of Direct Representatives, with a view to greater economy of labour and money, has again been presented to Parliament, this time in the House of Commons. Last year the Bill passed the House of Lords, but failed to reach the Statute Book. I am given to understand that, if conditions are favourable for its consideration this year, it will receive important support from both sides of the House.

Much attention was given by the Council at the end of last year to certain questions arising under the Regulations for National Health Insurance. The correspondence with the Insurance Commissioners on these questions, undertaken by the President at the instance of the Council's special Committee and of the Executive Committee, has been communicated to members of the Council and published in the current Minutes. From these it will appear that, in response to representations made on the Council's behalf, the Commissioners have issued new Regulations. These they believe will remove the misapprehensions entertained by certain local authorities as to the legal status and responsibilities of qualified medical practitioners, and the legal disabilities of unqualified practitioners, in regard to the medical treatment of insured persons. The Commissioners have further intimated to the President that, in framing their official forms and memoranda, every effort will be made to exclude phrases which might seem to afford occasion for any contravention of existing statutes bearing on the subject. There is good reason to believe that the efforts of the Commissioners have been effective in informing local authorities of their duty in relation to the "medical treatment" of insured persons desirous of making their "own arrangements." The recent conviction, for illegal practice, of a person with whom it is alleged that such "arrangements" had for a short time subsisted, will no doubt serve to impress on Insurance Committees the necessity of safeguarding the insured against "treatment" by persons who cannot administer it without breaking the law.

Penal Cases.—Death Certification.

From time to time communications reach the Registrar vaguely alleging that medical men, sometimes described as "panel," and sometimes as "non-panel" practitioners, are disregarding the warning notices of the Council in respect of canvassing or advertising with the intent to attract patients, or of issuing certificates of a misleading or inaccurate character. By direction of the Executive Committee the Registrar has made it widely known that the Council takes a grave view of such practices, and has intimated its purpose to inquire judicially into the conduct of any practitioner against whom a substantiated complaint of the kind may be brought. Certain complaints of this nature will, on the advice of the Penal Cases Committee, be submitted for your judgment during the present session. But it is proper to say that a few general allegations have been sent to the office, which were unsupported by tangible evidence, or were made by persons who declined to take the responsibility of formulating any specific complaint on which even a preliminary inquiry could be based.

The unsatisfactory state of the law in relation to the certification of deaths has frequently been commented on by the Council, and numerous representations have been made to successive Governments in favour of its amendment. The attention of the Executive Committee has again been directed to the subject, partly on account of communications I have had before me from coroners and others pointing out anomalies in the methods of local registration, partly also on account of the efforts of our own Registrar to ensure that local registration authorities shall be provided with proper means of ascertaining that persons signing what purport to be valid certificates are in fact legally registered practitioners. A memorandum setting forth the relevant extracts from the Council's minutes was prepared in the office and forwarded to the present Registrar-General for his information. In acknowledging its receipt the Registrar-General was good enough to inform me that fresh instructions were being issued which would effect certain improvements long desired by the Council. In particular, the local registrars were to be instructed that any death for which no certificate of cause of death is produced from a registered medical practitioner must be reported to the coroner; and further that the expression "medical certificate of the cause of death" means exclusively "the certificate of a registered medical practitioner who was in attendance during the last illness." But in addition to the improvement in registration practice thus contemplated, much remains to be done for the safeguarding both of the public and of the profession, and for the procuring of trustworthy statistics of disease and death. It will probably be found that fresh legislation is necessary. The subject is still under consideration by the Executive Committee with a view to suggesting what steps the Council may properly take in regard to it.

Evidence given at Royal Commissions, &c.

The Royal Commission on Venereal Diseases asked me, as President, to give evidence before it. I was questioned on such matters, within the Council's purview, as the training and testing of the medical student in respect of these diseases, the mischief of "unqualified" treatment of them and how the mischief may be checked, the sufficiency of the existing methods of certification, especially in their bearing on the vital statistics of syphilis, &c. I thought you would deem it my duty to place at the disposal of the Royal Commission the reports, yearly tables, and the like showing the results of qualifying examinations throughout the country, together with recent answers from officials of the examining bodies to particular questions which I sent them at the instance of the Commission. Information obtained by the efforts of the Unqualified Practice Committee was also furnished, and I understand that it has been found exceedingly useful and suggestive. On the question of death certification the memorandum, to which I have already alluded, was of value in showing the action of the Council in this matter before the new instructions were issued. My evidence will no doubt be published by the Commission, and you will be able to judge how far I have correctly represented the knowledge and the judgment of the Council concerning the questions that were raised.

Another Royal Commission—namely, that on the Indian Services—requested me to appear in person, or to name a representative, to testify on questions relating to the Medical Service of India. As such questions have recently been before the Examination Committee, I asked the chairman, Sir Charles Ball, to take my place as a witness, and he kindly consented to do so. It is probable that his committee will present a further report on certain points that

have arisen out of communications from the Government of India and the India Office on the qualifications of members of the Subordinate Medical Service.

The Registrar, with my approval, has appeared before a committee appointed by the Board of Education. The committee had to consider a proposal, made by a body of unqualified persons practising dentistry, that their "certificates" of dental soundness should be recognised and accepted by the Board in the case of candidates for employment as teachers. The Registrar supplied the committee with official information relating to dental students, the dental curriculum and examinations, the provisions of the Dentists Act, the legal decisions bearing on dental practice, and the disabilities of unqualified practitioners. He was thanked by the committee for the assistance he had afforded them.

Midwives (Scotland) Bill.

The Midwives Act of 1902, under which certain duties are laid upon this Council, does not apply to Scotland. A Bill "to secure the better training of midwives in Scotland, and to regulate their practice," has on the initiative of Lord Balfour of Burleigh passed the House of Lords, and now awaits consideration in the other House. Having in mind certain improvements on the English Act that have from time to time been desired by this Council, I ventured on your behalf to suggest to Lord Balfour at an early stage that these might advantageously be introduced into the Scottish Bill, and I believe that nearly all of them have now been incorporated. The Lord President has sent us a copy of the Bill as thus adjusted, with a request for our observations. The Executive Committee will in due course be ready to propose a convenient method of dealing with the subject. His Majesty has been pleased to appoint Dr. McVail, Dr. Norman Walker, and myself to be members of a board for improving the medical and nursing services in the Highlands and Islands of Scotland. The board has only begun its work, but already it is impressed with the urgent importance of securing better training for midwives, and of legally regulating their practice in the districts with which it is concerned.

Financial Questions.—The Pharmacopœia.—Inspection of Examinations.

I have dwelt at some length on what I may call the external activities of the Council. Inasmuch as these are mainly exercised during the recess, it is proper that they should be reported to you in full session, that those who have acted on your behalf may be assured that they have rightly understood your directions. Let me now say something about more domestic matters. The finances of the Council are in a satisfactory condition. Although the income last year rose by only £72, the expenditure fell considerably, chiefly owing to our shorter sessions. There is, therefore, a surplus on the annual account of £1645. The net deficit accumulated during the five years 1908–1912 amounted to £1363. At the end of 1913 we were able to pay off this deficit entirely, and to start the present year with £282 to the good. This result is highly favourable to the branch councils; for while in 1908 we had to draw upon their incomes to the extent of nearly 90 per cent., in 1913 the "percentage rate" was under 60. The treasurers report that the current year also may be expected to produce a surplus, but for various reasons it is likely to be of less amount.

The Pharmacopœia Committee and the Editors have been busily occupied in forwarding the preparation of the text and appendices of the British Pharmacopœia. Before the end of the present session the committee will be able to lay on the table of the Council a copy of the revised proof. Subject to typographical and other editorial corrections to be made in the final proof, this will represent the completed work, and the committee hope to have it ready for issue during the summer. Following the procedure approved on the last occasion, you will probably desire to delegate to the Executive Committee, at its regular meeting in July, the duty of formally adopting the British Pharmacopœia, 1914, and of arranging with the Treasury as to cost and price, indicating the conditions under which copies may be made accessible to the public in advance of promulgation, and advertising the date of official publication in the gazettes. I may be allowed here, as chairman of the Pharmacopœia Committee, to express publicly our deep obligations to the editors, Professor Tirard and Professor Greenish, for their skilful and devoted labours, and to the several committees of reference who have aided us in manifold ways to attempt a work worthy to take its place as the official dispensatory of the British Empire.

Turning to other official publications, I would call your special attention to the new and much improved form in which the Medical Register, the Dentists Register, and the Students Register are now produced. Thanks to the ingenuity of the Registrar, and the skill of the Council's publishers and printers, all of these works are now handsomer in appearance, lighter to handle, and easier of reference than ever before; and yet I believe that in a year or so, when the cost of entire resetting is paid off, it will be found that the improvement is accompanied by a considerable economy in the cost of production and publication. The Registrar's constant endeavours to this end deserve to be warmly acknowledged by the Council.

I have suggested to the chairmen of the Education and Examination Committees that it may be well to consider the question of beginning, at an early date, another cycle of inspection of qualifying examinations. Since the reports on the last cycle were considered a number of new licensing bodies have been created by Parliament, and are now fully organised for the work of professional education and examination. It would appear desirable that the Council should possess detailed information, derived from actual inspection, concerning their methods and standards. Such information may at any time be required of us for the use of Government and other official authorities, and it behoves us to procure it in the ways that the law directs us to follow. My own opinion is that in view of recent changes affecting the profession of medicine, and of the prospective demands upon professional knowledge, skill, and practical efficiency, a general inquiry extending to all the bodies, and carried out by inspectors appointed under our Standing Orders, would be timely and useful. But on that head it rests with the two committees, acting jointly, to offer you considered advice.

My address is already unduly prolonged, and I refrain from referring to other matters appearing in the programme. For the most part they speak for themselves; the rest will be spoken to by members who are abler than I am to deal with them fitly.

On the motion of Dr. LITTLE, the President was thanked for his address. Dr. Little also expressed the pleasure of the members of the Council that Sir Donald MacAlister had thoroughly recovered from his late dangerous illness.

Service Tables.

Tables showing the results of competitions for Commissions in (*a*) the Naval Medical Service, (*b*) the Royal Army Medical Corps, and (*c*) the Indian Medical Service were received and referred to the Examination Committee for its consideration.

On the motion of Sir CHARLES BALL it was agreed—

That the thanks of the Council be conveyed to the Director-General of the Medical Department of the Royal Navy, the Director-General of the Medical Department of the Army, and the Under Secretary of State for India respectively, for the returns which they have again furnished to the Council, with the request that such returns may in the future continue to be furnished to the General Medical Council.

Appointment of Committees.

The Council appointed various committees, the Executive Committee being as follows:—The President (chairman), Dr. Norman Moore, Sir Henry Morris, Mr. Tomes, Dr. Langley Browne, Mr. Hodsdon, Dr. Norman Walker, Sir John Moore, and Sir Charles Ball.

Assistant Examiners.

Sir CHARLES BALL moved—

That the powers vested in the General Medical Council by Section 5 of the Medical Act, 1886, of appointing from time to time examiners to assist at the qualifying examination, held by a medical corporation for the purpose of granting its diploma, conferring the right of registration under the Medical Acts, be delegated, under Section 6 of the Medical Act, 1858, to the Branch Council for the part of the United Kingdom in which such medical corporation is domiciled.

Sir Charles Ball said that by the Medical Act, 1886, it was ordered that no one should receive a registered qualification unless he had passed examinations in medicine, surgery, and midwifery. Previous to that Act there were several licensing bodies which had power to grant qualifications in medicine only, and others which had power to grant qualifications in surgery only. The result of the Act was that certain bodies combined to give a joint diploma which

would fulfil the conditions of the Act. There were other licensing bodies which had certain powers to grant qualifications on one branch only, but were unable to enter into a combination. These bodies under the Act might apply to the General Medical Council to appoint assistant examiners to examine in the subject in which they were deficient. A body which was qualified to give a qualification in medicine might have an assistant examiner to give a qualification in surgery. It came about that the bodies put forward to the Council the name of a gentleman for appointment as assistant examiner. His name was published in the programme of business, and as a matter of fact the gentlemen whose names had thus been put forward were elected by the General Medical Council without question. That seemed to him an unsatisfactory way of proceeding, because it would have been a very invidious thing to criticise the merits of the candidate put forward or to suggest an alternative name. At present there were only two bodies which needed the appointment of assistant examiners—the Apothecaries' Society of London and the Apothecaries' Hall of Dublin. Now all that he asked in his motion was that the election should be made by the Branch Council of the country in which the body was situated. The Branch Council had material to know more than the Council did of the candidate and more of the institution which was requiring the assistant examiner. The representative of the body concerned was a member of the Branch Council. Further, the proceedings of the Branch Councils were held *in camerâ* and there was an opportunity of discussing the name put forward if the members of the Branch Council wished to do so. The General Medical Council had thus the guarantee that the name was put forward in a way in which criticism of the merits was possible. He wished to assure the Apothecaries' Society that the names put forward by it had always been worthy of the confidence of the General Medical Council. He was sure that if the society sent up nominations of the same sort in future they would go through as a matter of course. But by the procedure which his motion suggested he felt that the responsibility of the Council was more sufficiently safeguarded.

Mr. WILKS seconded. He said that on behalf of the Apothecaries' Society of London he was instructed to tell the Council that that society had always been most anxious to assist it in doing anything for the benefit of the medical profession. He was instructed unreservedly to second Sir Charles Ball's motion.

The motion was unanimously agreed to.

The PRESIDENT remarked that this motion freed him from the obligations in regard to the appointment of assistant examiners which the resolution of last year placed on him. He was glad of this as he thought it was better that the Council should take the responsibility itself.

Medical Reciprocity with Newfoundland and New Brunswick.

On the motion of the PRESIDENT the following report was received from the Executive Committee:—

(*a*) The Executive Committee reports that Part II. of the Medical Act (1886) having been extended by an Order in Council to the Colony of Newfoundland, it has considered the conditions under which medical qualifications granted in the colony shall be recognised for registration in the Colonial List of the Medical Register of the United Kingdom, and has adopted the following resolution:—

"That any person who holds the licence of the Medical Board of Newfoundland, granted after examination in medicine, surgery, and midwifery, together with the licence to practise in the colony, shall be entitled to be registered in the Colonial List of the Medical Register, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886."

(*b*) The Executive Committee reports that Part II. of the Medical Act (1886) having been extended by an Order in Council to the Province of New Brunswick, it has considered the conditions under which medical qualifications granted in the province shall be recognised for registration in the Colonial List of the Medical Register of the United Kingdom, and has adopted the following resolution:—

"That any person who holds the licence of the Council of Physicians and Surgeons of the Province of New Brunswick, granted after examination in medicine, surgery, and midwifery, together with the licence to practise in the province, shall be entitled to be registered in the Colonial List of the Medical Register, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II. of the Medical Act, 1886."

Master of Surgery of Punjab University.

On the motion of the PRESIDENT a report was received from the Executive Committee directing the Registrar to add the degree of M.S. of the Punjab University to those granted by that University to which recognition had been previously accorded.

The Finance Report.

Mr. TOMES presented the report of the Finance Committee, which showed that the income of the General and Branch Councils for the year ending Dec. 31st, 1913, was £8332 11*s.* 4*d.* The expenditure was £6687 4*s.* 11*d.*, and consequently there was a surplus of £1645 6*s.* 5*d.* The expenditure, which was £942 less in 1912 than in 1911, showed a further decrease of £486 in 1913. Once more the cost of the sessions was less than in former years. From the foregoing it will be seen that the larger surplus this year results not from increased receipts but from diminished expenditure. The committee notes that the number of students registered during 1913 was 1480. This is an increase of 83 over the number registered in 1912, and compares favourably with the average of 1420 per annum for the past five years. The number of dental students registered during 1913 was 361. The average number registered from 1899–1903 was 197; from 1904–1908 was 240; from 1909–1913 was 313. Mr. Tomes went on to comment on the satisfactory nature of the report. The happy financial position in which the Council found itself was due to the expedition with which recent sessions had been conducted.

It was agreed to receive the report.

The Council then adjourned.

WEDNESDAY, MAY 27TH.

The Council considered the case of Mr. H. Chatterjee, L.R.C.P. and S. Edin., L.R.F.P.S. Glasg., who was charged with infamous conduct in a professional sense, the complainants being the British Medical Association. The Council on adjourning for the day had not concluded its consideration of this case.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.—The report of the council on the Poor-law Institutions Order, 1913, expresses the opinion that this Order inaugurates many valuable changes, among which may be mentioned the exclusion of children from the mixed workhouse, and the better classification of the inmates of Poor-law institutions. The council cannot, however, approve of some of the new medical recommendations. Much additional work is thrown upon indoor Poor-law medical officers without any increase in their salaries, a matter upon which the Order says nothing. The clerical work is enormously increased, while the repeated examination of healthy children will add much to the medical officer's routine work. The chief point where, in the opinion of the council, this Order is retrograde is an old grievance and deals with control. The necessity of medical control in Poor-law institutions for the sick has always been insisted upon by the association; but in this Order the medical officer as regards subordination to the workhouse master is in a worse position than in the past. The old Order, making it the duty of the master to take care that all sick and insane inmates and infants are duly visited by the medical officer, is continued. This is a duty the master is not competent to perform, and the council much regrets that the opportunity was not taken to omit it entirely. The position of the medical officer should be that of a chief official directly responsible to the house committee and the guardians. Further, the council is quite unable to approve of any system that places the control of the sick wards in the hands of a non-medical officer. To subordinate the medical and nursing staff to such an official is, in its opinion, radically wrong, and should not be permitted. The sick wards in workhouses should be separated from the rest of the institution and put under the control of the medical officer, to whom the superintendent nurse must be responsible. The workhouse master should act as steward under the medical officer, but should be relieved from all other administrative duties and responsibilities in the sick wards. The council is of opinion that unless both the status and the remuneration of the workhouse medical officer are improved the existing difficulty of obtaining such officers will be very considerably increased. Again, all drugs and appliances for the sick poor should be provided by the guardians, yet in this latest Order the guardians are still permitted to contract with their medical officers to supply them. Difficulties, too, are likely to arise on account of the compulsion put upon all medical officers to produce books, documents, or accounts whenever required by the clerk.

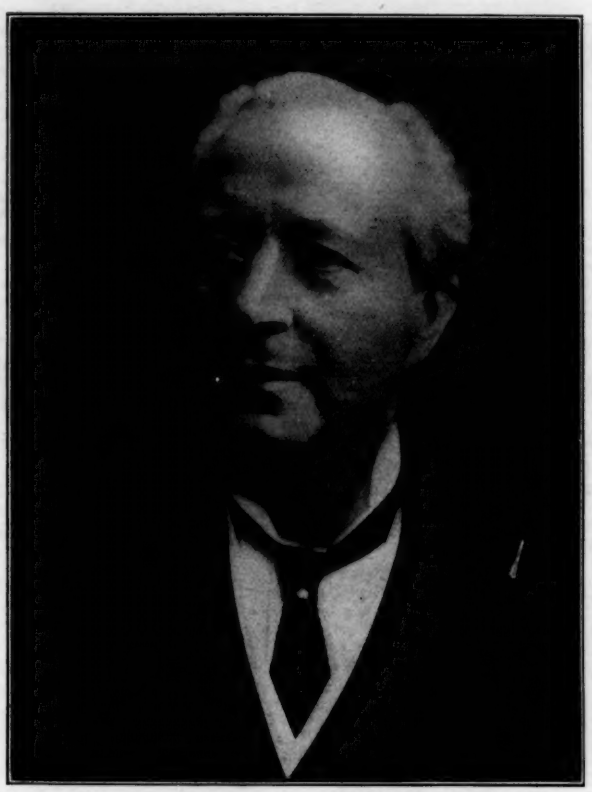
Obituary.

SIR FRANCIS LAKING, BART., G.C.V.O., K.C.B., M.D. HEIDELB., LL.D. ABERD., M.R.C.P. LOND.,

PHYSICIAN-IN-ORDINARY AND SURGEON-APOTHECARY TO HIS MAJESTY; CONSULTING PHYSICIAN TO THE VICTORIA HOSPITAL FOR CHILDREN AND TO THE GORDON HOSPITAL FOR FISTULA.

Sir Francis Laking passed away in London on May 21st. He was an example of the distinction which character, courtly demeanour, and unusual tact can attract no less than of that which comes to the distinguished scientist.

Francis Henry Laking was born on Jan. 9th, 1847. He received his medical education at St. George's Hospital and at Heidelberg. He qualified as L.R.C.P. in 1868. In 1869 he became L.S.A., and also took the M.D. degree at the University of Heidelberg. From 1869 to 1870 he was house physician, and from 1871 to 1874 medical registrar at St. George's Hospital, to which he subsequently became visiting apothecary. In 1872 he became a Member of the Royal College of Physicians. For a time he served on the visiting medical staff of the Victoria Hospital for Children, and was subsequently elected consulting physician. He began practice in partnership with the late M. du Pasquier apothecary to the Royal Household which proved the stepping-stone to his subsequent career as a Court physician. On the death of his partner Dr. Laking succeeded him as apothecary-in-ordinary to Queen Victoria, and held the same office to the Royal Household, the Prince of Wales (afterwards King Edward VII.), and H.R.H. the Duke of Edinburgh, as well as being physician-in-ordinary to T.R.H. the Duke and Duchess of Connaught and to T.R.H. Prince and Princess Christian of Schleswig-Holstein. When King Edward came to the throne Sir Francis Laking, who had been knighted by Queen Victoria in 1893, continued to hold the confidence of his sovereign and retained his post, and he attended the King during his illness in 1902, in conjunction with the other distinguished medical men, Lord Lister, Sir Thomas Barlow, Sir Frederick Treves, and Sir Thomas Smith, who shared with him the care of the nation's anxiety. For this service he was created a baronet in 1902. He remained in constant attendance on the King, and with Sir James Reid was with him through his last illness and was present at his death-bed, continuing to be physician-in-ordinary to Queen Alexandra subsequently. In 1903 he was promoted to the rank of Knight Grand Cross of the Victorian Order, and in the same year received the Grand Cordons of the Portuguese Order of the Immaculate Conception and of the Crown of Italy, to which was added in 1904 that of the Royal Order of the Dannebrog. He became in that year also a Commander of the Legion of Honour, and was in the following year promoted to the rank of a Grand Officer of the Legion. Other decorations conferred on him were the First-class Gold Order of Merit of Turkey, the Grand Cordons of the Polar Star of Sweden and of St. Olaf of Norway, and the Knight Commandership of the Order of the Saviour, of Greece. In 1910 he was created a K.C.B. On the accession of King George Sir Francis Laking was continued in his office of physician-in-ordinary and surgeon-apothecary to His Majesty and surgeon-apothecary to the Household. He had thus the remarkable distinction of being the ordinary medical attendant of three successive sovereigns. His contributions to medical literature were not numerous, but he was the author of a paper on Indican in the Urine which appeared in the St. George's Hospital Reports.



SIR FRANCIS LAKING, BART.

(From a photograph by Lafayette, Limited.)

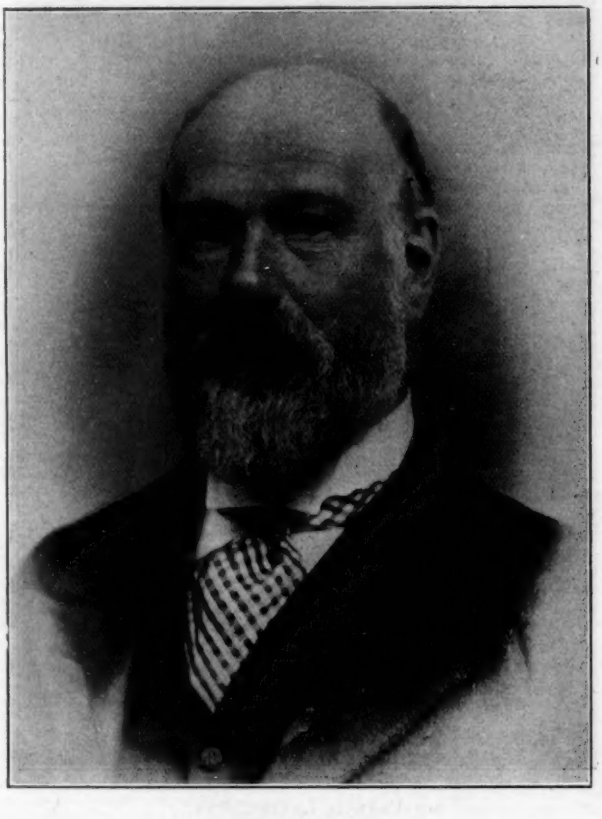
Sir Francis Laking married in 1873 Emma, daughter of Mr. Joseph Mansell, and in 1905 Eleanor Mary Angerstein, daughter of the late Mr. James Hackworth, of Dunedin. He is succeeded in the baronetcy by his son, Mr. Guy Laking, M.V.O., who is a distinguished antiquary, and the Keeper of the King's Armoury.

PHILIP HENRY PYE-SMITH, M.D. LOND., HON. M.D. DUB., F.R.C.P. LOND., F.R.S.,

CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

By the death of Dr. Philip Henry Pye-Smith, which took place on May 23rd, at 26, Hyde Park-square, London, after a long illness, the medical profession has lost a distinguished member and Guy's Hospital one of the band of scientific physicians who in the later years of the nineteenth century followed in the footsteps of Bright and Addison.

Born in 1840, he was the son of Mr. Ebenezer Pye-Smith, F.R.C.S., and grandson of the Rev. John Pye-Smith, D.D., F.R.S. His early student life was passed at Mill Hill School, and later he studied medicine at Guy's Hospital, subsequently visiting the Paris and other continental medical schools. Having taken the Arts degree of the University of London, he proceeded to the M.D. degree of that University in 1864, taking the gold medals in medicine and surgery, and in the following year was appointed lecturer in comparative anatomy at Guy's Hospital Medical School. He afterwards successively held the posts of lecturer in practical physiology, demonstrator of cutaneous diseases, and lecturer in clinical medicine till 1899, when he retired from the hospital staff. He was appointed assistant physician to Guy's Hospital in 1872, was promoted to full physician in 1884, and was elected consulting physician in 1899. In 1870 he was elected a Fellow of the Royal College of Physicians of London, and on many occasions between the years 1875 and 1888 was an examiner for the College. From 1888 to 1890 he was a member of the Council, and in 1893 he delivered the Harveian Oration. In 1894, 1895, and 1899 he served as Censor, and from 1902 to 1908 he was the representative of the College on the Senate of the University of London.



PHILIP HENRY PYE-SMITH.

In 1899 Dr. Pye-Smith was appointed by the British Government joint representative with Sir Heron Maxwell at the International Congress on Tuberculosis in Berlin, and the conclusions,[1] which he appended to the joint report in the form of a memorandum to a Parliamentary paper, are well worth reading as showing the point that had been reached in our knowledge of the causes and conditions of tuberculosis a decade and a half ago. He concluded by saying that "The prospect of improved success in the treatment of tuberculosis in general, and of consumption in particular, by the advance of pathology and the progress of surgery and medicine is a hopeful one, almost as hopeful as that of limiting the spread of the disease by preventive measures."

Dr. Pye-Smith, who was a former Vice-Chancellor of the University of London, was an honorary Fellow of the College of Physicians of Philadelphia and of the Royal Academy of Medicine in Ireland, and a governor of Shrewsbury and St. Paul's Schools. His literary work included a Syllabus of Lectures on Physiology with Tables and Diagrams (1885), an Address to the Department of Anatomy and Physiology at the British Association (1879), the Address in Medicine at the British Medical Association (1900), the Lumleian Lectures on Etiology (1895), and an Introduction to the Study of Diseases of the Skin (1893). He was also joint author with the late Dr. Fagge of an excellent "Textbook of the Principles and Practice of Medicine," the fourth edition of which was published in 1901. "Fagge and Pye-Smith" is now less well known to the younger generation of practitioners, but in its day it deservedly ranked very high, especially as a textbook of medicine for students reading for the higher examinations. Dr. Pye-Smith was the author also of the article on Harvey in the "Encyclopædia Britannica," on Pneumonia in Allbutt's "System of Medicine," and among his other contributions were: An Analysis of 680 Cases of Rheumatism and Allied Diseases; Xanthelasma; Idiopathic Anæmia, with 100 Cases; and on Prognosis (Guy's Hospital Reports, 1874–1887); Observations on Division of the Cervical Sympathetic, in the *Journal of Physiology*, Vol. VIII.; Anæmia Idiopathica Perniciosa, in *Virchow's Archiv* (1875); and Venesection, in the Medico-Chirurgical Transactions (1891).

A colleague writes:—"Philip Henry Pye-Smith,

[1] THE LANCET, vol. ii., 1899, p. 177 et seq.

although arrived at a good age, has yet, as it might seem, gone from us all too soon, for he was possessed of that clear complexion and open countenance that had withstood well the ravages of time, and his last lingering illness must have come suddenly and unexpectedly to many of his friends. As a teacher his mind was well stored with information; it was firmly based upon experience and observation gained at home and in continental schools, and his method of teaching was precise and dogmatic. Thus he became a successful teacher at the bedside, and he carried through several editions the text-book on medicine written by his colleague, the late Dr. Hilton Fagge, and first published not long before that lamented physician's death. He added moreover considerably to his reputation as a physician by bestowing his attention upon diseases of the skin, of which specialty he took charge for some years as an assistant physician at Guy's Hospital. To this study as well as to general medicine he made many important contributions, and in it his interest never flagged. But although he has thus left his mark upon the medicine of his day, his bent and recreation seemed perhaps more to lie amid scientific subjects of more general interest, and his friends and associates were learned men of that ilk—Huxley, Michael Foster, and Gull, for example, in their day—and this was so more or less throughout his life. He was fond of old authors and old books, and would often quote from them. He was a good speaker, and could always be trusted on an important occasion to say the right thing and to say it well, and being a man of affairs he was one whom his friends might have hoped, had his health not given way, would at some time have been called upon to fill the presidential chair of the Royal College of Physicians. He was always courteous, always genial, a kindly host given to a somewhat old-time hospitality where he was to be seen at his best, and perhaps most endearing of all he was a most unselfish and generous man, ever ready to help a friend or younger colleague in the struggle upwards towards success."

THE NATIONAL INSURANCE ACT.

THE SOCIETY OF APOTHECARIES AND UNQUALIFIED PRACTICE.

THE following resolution has been passed by the Court of Assistants of the Society of Apothecaries of London:—

Resolved that this Court regrets that in Paragraph 44 (2) of the regulations dated Jan. 10th, 1914, made by the National Health Insurance Joint Committee, acting jointly with the Insurance Commissioners, and the Memorandum issued in connexion therewith, provision is made whereby insured persons making their own arrangements for medical treatment under Section 15 (3) of the National Insurance Act, are allowed to obtain treatment from unqualified persons. Further, that this Court strongly objects to public money being paid for the encouragement of unqualified medical practice, and begs to draw the attention of the General Medical Council to the matter.

LONDON PANEL COMMITTEE.

The Panel Committee for the county of London have decided that duly qualified medical practitioners and representatives of the medical press shall be admitted to all meetings of the committee, provided that the committee, by resolution, may temporarily exclude such persons whenever such exclusion is advisable. The meetings of the committee are held in the Board Room at the offices of the Metropolitan Asylums Board, Victoria Embankment, E.C., on the fourth Tuesday in each month, at 3 P.M.

A FRIENDLY SOCIETY AND THE ACT.

At the forty-fifth annual meeting of the National Deposit Friendly Society at Sheffield the president, in moving the adoption of the report, spoke of the position of the society as "very satisfactory." Dealing with the position of the society with regard to the working of the Act, he said if they compared the amounts paid out in each branch of the State section with the estimates made by the Government actuary it would be found that the accounts came out on lines completely satisfactory as far as their society was concerned. Statements had been made reflecting upon some of the Approved Societies to the effect that they had gone entirely beyond the actuaries' estimates, and that they were in a hopeless and insolvent position. That was by no means the experience of their society. No doubt the increase in sick pay went on in both the State and deposit sections. He did not attribute it all to malingering, but it was nevertheless no use shutting their eyes to the fact that there had been considerable malingering. Later in his speech the chairman observed that "there was no doubt some degree of laxity and looseness on the part of doctors which required to be carefully watched"; and with regard to the general working of the Act, including no doubt the control of the medical men engaged upon it, it was suggested by him that "the Government would find that the best way was to entrust large and reliable Friendly Societies with the work on proper lines subsidised by the State."

ELGIN AND NAIRN INSURANCE COMMITTEE.

At a recent meeting of the Elgin and Nairn Insurance Committee a protest was raised on behalf of the medical men on the panel against the manner in which they were being subjected to loss owing to the failure of the societies to trace removals. The clerk, in a statement of payments made by the Commissioners in respect of the various benefits administered by the committee, had intimated that the distribution in respect of medical benefit to the panel would amount to 95 per cent. of the funds due and that the full amount could not be paid. The protest was then made by Dr. J. Taylor, who pointed out that the fact that the full amount due could not be paid amounted to an admission of insolvency. This was partly due to the failure of the Approved Societies in connexion with their index slips, the result of which was that medical men expecting a substantial cheque for the heaviest working quarter received instead lists of patients who had been struck off their lists and who were not to be paid for. These were people for whom no index slips had been returned by the societies. He had himself been attending a woman who had lived in the same house for ten years and yet who had been crossed off as unidentified by the clerk of the committee because no index slip had been returned for her. Another patient had been taken off his list whom he had recently operated on in a hospital after attending him about 100 times. Cards were sent out and returned by the post-office undelivered and the patients were struck

off. This had happened in the case of his own chauffeur, who had moved to an address 40 yards away from his former one. There were scores of such untraced persons who to his knowledge were still in the town. The chairman characterised the statement made by Dr. Taylor as a moderate one, and Dr. Atkinson added that the medical profession had carried out its side of the bargain, and that the medical men were not responsible for the index slips, which were none of their business. Dr. Taylor further extracted a reply from the clerk to the effect that insured persons even when they had been struck off a list were entitled to medical treatment if they became ill. The matter was dropped without any conclusion being arrived at, but the subject will no doubt be discussed again in other districts. Medical men who accept the remuneration offered by Insurance Committees do so because the payments on behalf of persons who do not consult them compensate them for attendance upon the sick at a rate of pay which would otherwise be unremunerative. Those, therefore, who are taken off their lists because they have not been traced represent a dead loss. If they remain well no payment is made in respect of them; if they become ill attendance upon then at insurance rates is expected.

HULL INSURANCE COMMITTEE.

At a recent meeting of the Hull Insurance Commiteee it was reported that as the result of a conference between members of the Medical Benefit Subcommittee and the Insurance Commissioners payment by way of advance was recommended to medical men on the panel at the rate of 1*s.* 6*d.* for each person on their lists on Jan. 12th, and to druggists of 75 per cent. of their accounts as assessed for the two months ending March 12th, provided that the total amount of such payments did not exceed 95 per cent. of the amount estimated to be available on the provisional credit advised by the Commissioners.

FIFE PANEL DOCTORS.

At a meeting of the Fife County Insurance Committee held at Kirkcaldy a statistical report was submitted showing that 8000 insured persons on the medical practitioners' lists had not been paid for by the committee. The clerk was instructed to press the Commissioners for payment.

UNIVERSITY COLLEGE, LONDON.—The title of emeritus professor of clinical surgery has been conferred upon Sir Rickman J. Godlee, President of the Royal College of Surgeons of England, and Mr. Bilton Pollard.

KING EDWARD VII.'S HOSPITAL, CARDIFF.—At a joint meeting of the chairmen of the various committees of this hospital, held this week, it was decided to accept the resignations of the three house surgeons at present in residence. Differences had arisen, we are informed, owing to a recent increase of £40 per annum in the salary of the house physician without similar recognition of the house surgeons, who hold a similar status in the hospital.

HOSPITAL FOR NERVOUS DISEASES, BELFAST.—At the annual meeting of the supporters of this hospital held on May 19th the report showed that during the year 33 patients had been treated in the intern department, while in the out-patient department a larger number of cases had been seen than formerly, involving 3830 attendances. Dr. John Thompson has been appointed physician in place of the late Dr. John MacCormac, and Dr. John Rusk assistant physician. Financially, there is a deficit of £573 14*s.*

Medical News.

UNIVERSITY OF CAMBRIDGE.—The following medical degrees have been conferred:—

M.D.—W. L. Murphy, St. John's; and C. H. S. Taylor, Caius.
M.B., B.C.—G. Moore, Clare.
M.B.—A. G. G. Thompson, Pembroke.

W. Morley Fletcher, M.D., Trinity, has been approved for the degree of Sc.D. The first and second examinations for medical and surgical degrees will begin on Monday, June 15th, the third examination, Part I., on June 16th, and Part II. on June 17th. The examination for the degree of M.C. will begin on June 18th.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—W. Bailey Thomson (Sections I. and II.), Aberdeen; A. R. Jennings (Section I.), St. Bartholomew's Hospital; and W. Smith (Sections I. and II.), Durham.
Medicine.—W. Bailey Thomson (Section I.), Aberdeen; M. P. Dos Santos (Section II.), Louvain; and G. Mes (Sections I. and II.), Amsterdam.
Forensic Medicine.—W. Bailey Thomson, Aberdeen; L. Baumgarten, Berne and London Hospital; G. Mes, Amsterdam; H. Morrison, St. Mary's Hospital; and B. C. Piercy, Leeds.
Midwifery.—W. Andrew, King's College Hospital; W. Brown, King's College Hospital and Oxford; and R. J. Hearn, Guy's Hospital and Cambridge.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—

B. C. Piercy and W. Smith.

Sir William Osler, Regius professor of medicine in the University of Oxford, will open the new Pathological Laboratory of the Royal Mineral Water Hospital, Bath, on Thursday, June 4th, at 4 o'clock.

ST. THOMAS'S HOSPITAL: ANNUAL PRIZE DISTRIBUTION.—The prizes will be distributed to the successful students of this hospital by Sir T. Clifford Allbutt, K.C.B., Regius professor of physic in the University of Cambridge, on Tuesday, June 30th.

ROYAL SANITARY INSTITUTE.—The following medical practitioners have this month been elected members of the institute: Dr. Sydney James Clegg (Newcastle-on-Tyne), Dr. Josephine Letitia Denny Fairfield (Hampstead), and Dr. Alexander L. McQuarrie (British Columbia).

PORTSMOUTH RADIUM FUND.—The Portsmouth guardians, having obtained the necessary consent of the Local Government Board, have contributed £100 to the Portsmouth *Evening News* Radium Fund. This now amounts to £2134 7*s.* 9*d.*

KINGSEAT ASYLUM EXTENSION.—A scheme for the extension of Kingseat Asylum, Aberdeen, has been passed by the Aberdeen District Lunacy Board. This scheme comprises a combined hospital villa for both sexes, at an estimated cost of £12,250, or £139 per bed, this cost being exclusive of furnishings or architect's fees.

A "ROYAL" INFIRMARY FOR EAST LANCASHIRE.—The King has granted permission to the Blackburn and East Lancashire Infirmary to be known as the Blackburn and East Lancashire Royal Infirmary. The endowment fund investments are now £95,920, which gives a yearly income of £2872. The patients admitted last year numbered 7666.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—A meeting of the executive committee of this society was held at 429, Strand, W.C., on May 15th, Dr. F. J. Allan being in the chair. The accounts showed satisfactory progress both in the matter of new claims and new proposals. The new tables were reported as being duly registered, and proposals are already coming in under them.

PRESENTATION TO A MEDICAL MAN.—The Paignton branch of the Great Western Railway employees of the St. John Ambulance Association at the annual distribution of certificates and medallions held recently at Exeter, presented Mr. Robert Dunstan, M.R.C.S. Eng.,

L.S.A., with a handsome walking stick in appreciation of his services as honorary instructor.

NORTHERN ASSOCIATION OF MEDICAL WOMEN.—A meeting of this association was held at the Medical Institution, Liverpool, on May 23rd. Delegates were present from Manchester, Leeds, Sheffield, and Preston. After a discussion on the National Care of Maternity the following resolution was passed unanimously:—

That this meeting is of opinion that it is necessary for the welfare of the working women of this country that efficient pre-maternity and maternity care should be provided, including any necessary institutional treatment; and that for the proper coördination of existing organisations for ante-natal and post-natal care the administration of the maternity benefits should be handed over to the public health authorities.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Workmen's Compensation.

A HIGHLY important announcement that the Government is to set up a Committee to inquire into the Workmen's Compensation Act in all its aspects, and also into its relationship to the National Insurance Act, was made by Mr. ELLIS GRIFFITH, the Under Secretary of State for the Home Department, in the House of Commons on the evening of Wednesday, May 20th.

This announcement was made in reply to a debate on a motion brought forward by Mr. TYSON WILSON to the effect "that in the opinion of this House a Committee should be appointed to consider and report upon the anomalies that have been created in the administration of the Workmen's Compensation Act." In the course of the discussion the subject of medical referees was referred to.

Mr. ELLIS GRIFFITH, in the course of his reply, said that the point which the Labour Members had put was that there ought to be full-time medical referees under the Workmen's Compensation Act. All honourable members would agree in theory that if it was at all practicable that ought to be so. They were anxious to get men who would be full-time medical referees because they would be able to give an absolutely impartial opinion as between employer and employed. At present these medical referees were appointed for each county court district. The first thing that would have to be done if a change were adopted would be to get these areas extended. It would be impossible to get the very best men unless they were attracted by a larger salary than was afforded by a small district. Honourable members knew how careful the Home Office had been in sending out circulars that the medical referee should not be interested in the case, and that he ought to go to it with an impartial and unbiased mind.

Mr. HODGE: Lord Gladstone when he was Home Secretary promised, as an experiment in some of the larger districts, to employ full-time medical referees. It has never been done.

Mr. ELLIS GRIFFITH admitted that that promise had never been fulfilled. He did not see why it should not be possible to do it in a very large district. These points, however, were of relatively less importance than the announcement which he was going to make. He was prepared to accept the motion. The Government thought that a Committee should be appointed to consider not only the administration of the Act but also its alteration. Honourable Members all knew that a new factor had come into existence with the National Insurance Act, and just as Labour members wanted a State paid service of medical referees, so there had been a suggestion on foot that there should be a State insurance of employers against compensation risks of all kinds. That was to say, that instead of insuring in private companies for one class of cases and by their National Insurance contributions for another class of cases there should be some organisation whereby employers could pay once for all and protect themselves against disablement, illness, and all these other matters. The proposal of the Government was that they were going to appoint a Committee to inquire not only into existing anomalies, but also into the relationship between the Workmen's Compensation Act and the National Insurance Act, with the view, if possible, of bringing these two matters into more harmonious relationship.

The Whitsuntide Recess.

Parliament has adjourned for the Whitsuntide recess. The House of Commons is taking a fortnight's holiday, but the House of Lords does not reassemble until June 15th.

HOUSE OF COMMONS.

WEDNESDAY, MAY 20TH.

National Insurance Grants to Ireland.

Mr. CASSEL asked the Chancellor of the Exchequer what proportion of the grants of £1,250,000 for the year 1914–15, and of £2,000,000 for the year 1915–16, for National Health Insurance, tuberculosis nursing and pathological laboratories it was estimated would be attributable to Ireland.—Mr. LLOYD GEORGE wrote in reply: The figures may be stated provisionally as follows:—

	1914–15.		1915–16.
National Insurance	£52,000	...	£65,000
Tuberculosis nursing and pathological laboratories	£22,500	...	£67,500
	£74,500		£132,500

Medical and Surgical Appliances.

Lord NINIAN CRICHTON-STUART asked the Chancellor of the Exchequer whether there were any industries or avocations in which there was particular danger of particular kinds of accidents happening, or diseases being contracted, for which the National Health Insurance Committees were allowed to supply any particular kinds of medical instruments or necessities.—Mr. HOWARD (on behalf of Mr. LLOYD GEORGE) answered: The medical and surgical appliances which Insurance Committees are empowered to supply as part of medical benefit are those specified in the second schedule to the Regulations. These are available in suitable cases for the treatment of diseases or accidents, whether arising as a result of the insured person's employment or otherwise.

Miners' Itch and Industrial Diseases.

Mr. WEDGWOOD asked the Home Secretary whether his attention had been called to the Milroy lectures, delivered by Dr. Shufflebotham before the Royal College of Physicians, dealing with miners' diseases, and whether the Home Office contemplated adding miners' itch to those industrial diseases which were covered by the Workmen's Compensation Act.—Mr. MCKENNA replied: I have seen a report of these lectures but have otherwise no information in regard to this ailment. It is not mentioned in the report of the Committee on Compensation for Industrial Diseases, and no representations have been made to me on the subject. If, as I gather from the report of the lectures, the ailment cannot be regarded as specific to the employment in the sense indicated by the committee in their report, I could not add it to the schedule in the Workmen's Compensation Act, but any cases of disablement caused by this ailment will be covered by the National Insurance Act.

Medical Inspectors under the Mental Deficiency Act.

Mr. SNOWDEN asked the Home Secretary whether he was aware that the Board of Control for the administration of the Mental Deficiency Act recently advertised for male and female inspectors who must be registered medical persons, and that the salaries offered were £400 for men and £350 for women, and, if so, would he explain why this difference of payment was made, seeing that the Board stated that there was no difference in the importance of the work of the men and women inspectors; whether the first woman candidate offered the post refused it on account of this difference in salary; whether the second candidate accepted it and then withdrew for the same reason; whether the post was still unfilled; and whether it had hitherto been the practice of Government departments to pay medical officers the same salaries, whether men or women; and, if so, why this practice had been departed from in this case.—Mr. MCKENNA answered: The salaries offered were £400, rising to £600, and £350 rising to £550. They were fixed by the Treasury at the rates at which it was believed suitable candidates could be obtained. At that time the report of the Royal Commission on the Civil Services had not been published, but the proposed salaries appear to comply with the recommendation of the Commission that where the conditions of employment are approximately the same the rates of pay should approximate to equality. The first two candidates to whom the post of female inspector was offered declined it on the ground of difference of salary, not because they thought it too small. The post has not yet been filled, but the matter is not at present urgent. There is no rule or practice requiring the salaries of men and women medical officers in the Government service to be the same,

Mr. SNOWDEN: Is it not a fact that in practice the remuneration of women medical officers is the same as men medical officers?—Mr. MCKENNA: I am informed not, but I will inquire further into the point.

Mr. SNOWDEN: Are we to infer from the reply just given that the Treasury consider that the services of women will not be equal in value to the services of the men, and is that the reason there is for this difference of salary? The Report of the Royal Commission to which the right honourable gentleman refers recommended equal pay for equal work.—Mr. MCKENNA: The Treasury rule was stated by me. Rates were fixed by the Treasury at which it was believed suitable candidates could be obtained. That, I believe, is the practice of the Treasury. With regard to the second point, the work is approximately the same and the rates are approximately the same, but it cannot be said that the work is identical.

Mr. SNOWDEN: Seeing it is impossible to get women doctors at these rates of pay, will they now offer the women the same salary as the men?—Mr. MCKENNA: I am not sure what appointments have been made.

Mr. MACCALLUM SCOTT: Is my right honourable friend aware that a great many distinguished women economists are opposed to the doctrine of equal pay for equal work, and think that it would result disastrously to the interests of women?—Mr. MCKENNA: I agree with what my honourable friend says. For my own part, I should be ready to give equal pay for equal work, but I am not convinced the work is equal.

Midwives (Scotland) Bill.

Mr. BARNES asked the Prime Minister whether, in view of the passing through all its stages by the House of Lords of a Bill for the training and registration of midwives in Scotland, and in view of the need of such a Bill becoming law, he would favourably consider the question of giving facilities either for the Bill in question or for that standing in the name of the Member for the Blackfriars division of Glasgow.—Mr. ASQUITH said in reply: The Government are favourably disposed to the principles of the Bill and will consider whether facilities can be given for its progress.

The Nursing Home at Sierra Leone.

Mr. MACCALLUM SCOTT asked the Colonial Secretary whether the Manchester Chamber of Commerce had appealed to the Governor of Sierra Leone requesting that Europeans entering the nursing home might continue to enjoy the services of their own medical attendant, whether native or European; and could he say what reply had been sent to this request.—Mr. L. HARCOURT replied: I do not know what reply has finally been returned by the Governor of Sierra Leone to the letter from the Manchester Chamber of Commerce to which my honourable friend refers, but I have decided that the native medical practitioner to whose case the Chamber of Commerce specially referred shall continue to be allowed the same facilities for attending his patients in the nursing home that he has hitherto enjoyed, subject to the privilege being liable to be withdrawn at any time for good cause shown.

Sale of Food and Drugs Bill.

Sir PHILIP SASSOON moved for leave to introduce a Bill "to consolidate with amendments the Food and Drugs Act, 1875 to 1899, the Margarine Act, 1887, and the Butter and Margarine Act, 1907." He said that the object of the Bill was to consolidate into one consistent and comprehensive whole all the existing statute law governing the subject with which it dealt. The Bill also proposed certain amendments of the existing law. At present the powers of officers under the Food and Drugs Acts to purchase and to take samples of articles of food or drugs for the purpose of analysis were restricted to articles or drugs which were, or actually had been, exposed for sale. The present Bill gave power to take samples for analysis at any time after the process of manufacture or preparation for consumption was completed. Further, the powers now possessed by the Local Government Board of fixing by regulations the standards of purity of, and use of preservatives in certain articles were extended to all articles affected by the Bill. An even more important change was a proposal to set up a committee of 15 persons of a representative character to advise the Board in the passing of these regulations. The existing provisions relating to the defence of warranty had also been revised with the intention of making it more difficult for the seller of an impure or adulterated article to escape the proper consequences of his act. Additional innovations dealt with the compulsory registration of vendors of milk and butter, the infliction of imprisonment for repeated offences, exemption of officers from the necessity of entering into recognisances, and the granting of analysts' certificates. These changes, he believed, would be for the public benefit.

Leave having been granted Sir PHILIP SASSOON brought in the Bill, which was read a first time.

Preservatives in Cream.

Colonel IVOR PHILIPPS asked the President of the Local Government Board whether his attention had been called to the risk and loss to which respectable and honest retail traders were at present exposed owing to the uncertainty as to the law regarding the sale of preserved cream; and whether he proposed to take immediate steps to relieve traders from the constant danger to which the present law exposed them.—Mr. HERBERT SAMUEL wrote in reply: My attention has been drawn to this matter. The evidence at present available as to the influence on health of the addition of small quantities of preservatives to cream is to some extent contradictory. I have decided, therefore, to nominate a small expert committee to investigate afresh the question which I recognise to be of great and pressing importance to the trade concerned. Pending the completion of this investigation, which should not be prolonged, I would venture to express the opinion that it is inadvisable that local authorities should institute proceedings except in cases where the amount of boric acid in the cream exceeds the amount declared on the label or where the amount so declared is clearly excessive.

Miners' Nystagmus.

Mr. WEDGWOOD asked the Home Secretary whether his attention had been called to the evidence given by Dr. Shufflebotham in his Milroy lectures before the Royal College of Physicians that miners' nystagmus was principally due to the bad illumination of mines; whether the Home Office concurred in his views on this subject; and whether any steps could be taken to remedy the evil in connexion with the National Insurance Act or otherwise.—Mr. MCKENNA answered: I have seen a report of the lectures referred to. The researches made in recent years appear to point strongly to the conclusion that the working in insufficient light is the main, if not the sole cause of miners' nystagmus, and the point was kept in view when it was decided to impose photometric tests for all types of safety lamps approved under the Coal Mines Act, 1911. I am advised that as a result of these tests and the increasing use of electric lamps the illumination below ground is improving, and I trust that as this improvement continues it will have a substantial effect in reducing the number of cases of nystagmus. Miners' nystagmus is one of the diseases scheduled under the Workmen's Compensation Act.

Operations in Prison.

Mr. WEDGWOOD asked the Home Secretary to state under what law or regulation the consent of a prisoner had to be obtained before an operation could be performed by the prison or other doctors.—Mr. MCKENNA answered: There is no express provision of the law and no regulation requiring the prisoner's consent, but it is the invariable practice to obtain the prisoner's consent before a surgical operation is performed in prison.

Asylums Officers Bill.

Viscount WOLMER asked the Prime Minister whether his attention had been called to the recent unrest among asylum attendants in different parts of the country, particularly in Lancashire; and whether he would afford facilities this session for the passage of the Asylums Officers (Employment, Pensions, and Superannuation) Bill, which had already been approved by the Select Committee appointed to consider it in 1911.—Mr. ASQUITH replied: I am informed that there is no widespread unrest, though some dissatisfaction does undoubtedly exist. As regards the latter part of the question the Government are favourable to the principles of the Bill, and will consider whether the business of the House will admit facilities for its progress.

MONDAY, MAY 25TH.

A Complaint before the General Medical Council.

Mr. ANEURIN WILLIAMS asked the Home Secretary whether he was aware that about 1200 householders in or about Annfield Plain, county Durham, were members of a medical association who had made with a certain medical man in their neighbourhood an arrangement satisfactory to themselves and to the said medical man; whether the said medical man was threatened with being struck off the Medical Register because he was working for an association which it was alleged had canvassed; whether the alleged canvassing was denied by the association in question; whether the case would be heard before the General Medical Council in London on Wednesday this week; whether the charge against this association and their doctor was being supported by certain other doctors; whether in the event of the view put forward by these other doctors being accepted the doctor of the association would be struck off the medical list without enjoying any right of appeal; whether in these circumstances, and in view of the importance of the matter to the working classes, the Home Secretary would take steps to see that the matter was not decided without a full and impartial inquiry into all the facts of the case.—Mr. MCKENNA answered: I have received this morning a letter on the subject from a correspondent in Durham, but I have no other information. Assuming the facts to be as stated by my honourable friend, I do not think *primâ facie* that I have any authority to take action.

Mr. ANEURIN WILLIAMS: Will the right honourable gentleman inform me whether there is any power to get an impartial decision on this matter, or whether the powers of the General Medical Council are absolute in a matter which evidently concerns themselves?—Mr. MCKENNA: I should think that if the facts are as stated by my honourable friend the remedy can only be obtained by a fresh statute.

An Experiment on an Animal.

Mr. CHANCELLOR asked the Home Secretary whether, as stated in the King's Bench Divisional Court on Monday last, the Home Office had expressed entire satisfaction with the conduct of Dr. Yorke in exposing for several days in an open field a donkey covered with sores due to experiments made

upon it in the laboratory, and only destroying it after complaint had been made to the police in consequence of the swarm of flies observed from the other side of the hedge to be flying about and settling upon the animal, and what steps he proposed to take to prevent other animals being subjected to similar treatment.—Mr. MCKENNA replied: The statement reported to have been made in court that the Home Office had expressed itself as entirely satisfied with Dr. Yorke's conduct was incorrect. I expressed no such view. Careful inquiry was made by me at the time; I saw no ground for differing from the conclusion of the justices, who found that the allegations as to the condition of the animal which are repeated in the question were not substantiated, and that the animal was not in fact caused unnecessary pein; but I formed the opinion that Dr. Yorke should himself have visited the animal from time to time, and should have satisfied himself by personal inspection that it was being properly cared for, and I have so informed him.

BOOKS, ETC., RECEIVED.

BAILLIÈRE TINDALL, AND COX London.

Prevention of Dental Caries and Oral Sepsis. By H. P. Pickerill, M.D., Ch.B., M.D.S. Birm., L.D.S. Eng. Second edition. Price 12s. 6d. net.

BELL, G., AND SONS, LIMITED, London.

The History and Economics of Indian Famines. By A. Loveday, B.A. Price 2s. 6d. net.

Studies in the Minimum Wage (Chain Making Industry). By R. H. Tawney. Price 1s. 6d. net.

BLAKISTON'S (P.) SON AND CO., Philadelphia.

The Practice of Medicine: A Textbook for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By James Tyson, M.D., Emeritus Professor of Medicine in the University of Pennsylvania, and M. Howard Fussel, M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Sixth edition, revised and re-written. Six plates, 179 illustrations.

Pathogenic Micro-organisms: A Text-book of Microbiology for Physicians and Students. By Ward J. MacNeal, Ph.D., M.D., Professor of Pathology and Bacteriology in the New York Postgraduate Medical School. 213 illustrations.

CAMBRIDGE UNIVERSITY PRESS, Cambridge and London.

Notes on Inorganic Elementary Chemistry. By F. H. Jeffery, M.A. Price 3s. net.

CLARENDON PRESS, Oxford.

Plague and Pestilence in Literature and Art. By Raymond Crawfurd, M.A., M.D. Oxon., F.R.C.P. Price 12s. 6d. net.

CONSTABLE AND CO., London.

A Text-book of General Embryology. By William E. Kellicott, Professor of Biology in Goucher College. Price 10s. 6d. net.

Outlines of Chordate Development. By William E. Kellicott. Price 10s. 6d. net.

The Doctor's Dilemma: a Tragedy. By Bernard Shaw. With a Preface on Doctors. Price 6d.

FISCHER, GUSTAV, Jena.

Handbuch der Gesamten Therapie. In sieben Bänden. Herausgegeben von Prof. Dr. F. Penzoldt, in Erlangen, und Prof. Dr. R. Stintzing, in Jena. Fünfte Auflage. Lieferung 13 (Band II., Seite 369–528). Price M 3.50. Lieferung 14 (Band II., Seite 529–688). Price M.3.50. Lieferung 15 und 16 (Band III., Seite 321–640). Price M.3.50.

Handbuch der Vergleichenden Physiologie. Herausgegeben von Hans Winterstein in Rostock. Lieferung 42. Band III. Seiten 1447–1598. Price M.5.

Die vitale Karminspeicherung. Von Dr. K. Kiyono Kioto, Japan. Vorwort von L. Aschoff. Price M.16.

Ueber den Mechanismus der Oxydationsvorgänge im Tierorganismus. Von Dr. med. Lina Stern. Price M.2.20.

Das Problem der Geschwulstmalignität. Von Dr. med. Max Versé. Price M.3.

FUNK AND WAGNALLS COMPANY, New York and London.

Exercises for Women. By Florence Bolton. Director of Women's Gymnasium, Stanford University. Price 4s. net.

LONGMANS, GREEN, AND CO., London and New York.

Lourdes. By Johannes Jörgensen. Translated from the original Danish by I. Lund, with preface by Hilaire Belloc. Price 2s. 6d. net.

LYNWOOD AND CO., 12, Paternoster-row, London, E.C.

Some Principles of Spiritual Healing. By H. Lane, Vicar of Abbots Bickington, North Devon. Price 2s. net.

MALOINE, A., Paris.

Guide de Médecine Pratique. Pathologie Interne et Diagnostic. By Dr. R. Hyvert. Second edition. Price Fr.6.

Les Préjugés en Art Dentaire. By Dr. E. Charézieux. Price Fr.3.

MURRAY AND EVENDEN, LIMITED, Pleydell-street, E.C.

Queer Patients. By M. Oston, M.D. Second edition. Price 2s. net.

MURRAY, JOHN, London.

Researches into Induced Cell Reproduction in Amœbæ. By J. W. Cropper, M.B. Liverp., and A. H. Drew. (The John Howard McFadden Researches, Vol. IV.) Price 5s. net.

STOCK, ELLIOT, London.

Keep Breathing: How to Do It and Why. By Mme. M. A. Carlisle Carr. Price 2s. net.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BRAMWELL, HUGH RANSOM, M.B. Edin., M.R.C.S., has been appointed Chief Clinical Assistant in the X Ray Department at the West London Hospital.

BURT, W., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the Royal Free Hospital.

CARLILL, HILDRED B., M.D. Cantab., M.R.C.P. Lond., has been appointed Assistant Physician to the West End Hospital for Diseases of the Nervous System, Welbeck-street, W.

PITTS, ARTHUR T., M.R.C.S., L.R.C.P. Lond., L.D.S., has been appointed Dental Surgeon to the Hospital for Diseases of the Throat, Golden-square.

PRENTICE, H. RIDLEY, M.B., B.S. Lond., M.R.C.P. Lond., has been appointed Physician to Out-patients at the West End Hospital for Diseases of the Nervous System.

RANKEN, DAVID, M.S. Lond., B.S. Durh., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Hospital for Sick Children Newcastle-upon-Tyne.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN UNIVERSITY.—Lectureship in Public Health. Salary £400 per annum.

AUCKLAND RURAL DISTRICT COUNCIL.—Medical Officer of Health. Salary at rate of £500 per annum.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £150 per annum, with residence, board, and laundry.

BEDFORD COUNTY HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—House Surgeon for six months. Salary at rate of £75 per annum, with board, residence, and washing.

BIRKENHEAD BOROUGH HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Locum Tenens Junior House Surgeon. Salary 4 guineas weekly, with board and lodging.

BIRMINGHAM, CENTRAL TUBERCULOSIS DISPENSARY.—Assistant Medical Officer. Salary £350 per annum.

BIRMINGHAM, CITY FEVER HOSPITAL, Little Bromwich.—Assistant Medical Officer. Salary £160 per annum, with board and residence.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £220 per annum, with apartments, fire, lights, and attendance. Also Locum Tenens Resident Surgeon. Salary £5 5s. per week, with apartments.

BIRMINGHAM UNION, DUDLEY-ROAD INFIRMARY.—Resident Assistant Medical Officer. Salary £150 per annum, with apartments, rations, laundry, and attendance.

BIRMINGHAM, YARDLEY-ROAD SANATORIUM.—Assistant Medical Officer. Salary £250 per annum, with board and residence.

BOSTON RURAL DISTRICT COUNCIL.—Medical Officer of Health. Salary £110 per annum.

BOURNEMOUTH COUNTY BOROUGH EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.

BRADFORD CITY HOSPITAL, Leeds-road.—Assistant Resident Medical Officer. Salary £200 per annum, with board and residence.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—Assistant House Surgeon, unmarried, for three months. Salary £80, with apartments, board, and laundry.

BRISTOL ROYAL INFIRMARY.—House Surgeon for Throat, Nose, and Ear Department. Salary at rate of £100 per annum, with board, lodging, and laundry.

BURNLEY, VICTORIA HOSPITAL.—Two House Surgeons. Salary £135 per annum, with residence, board, and washing.

BURY INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, residence, and washing.

CAIRO.—Resident Physician for Mena House Hotel, Pyramids, near Cairo.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Surgeon and Junior House Surgeon, unmarried. Salaries £100 and £90 per annum respectively, with board, lodging, and washing.

CARDIFF, GLAN ELY TUBERCULOSIS HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with quarters and maintenance.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—House Surgeon for the Ophthalmic and Ear, Nose and Throat Departments. Salary £100 per annum, with board, residence, and laundry. Also Two House Surgeons for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C.—Assistant Surgeon.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—Registrar.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £90 per annum, with board, apartments, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant in Out-patient Department.

CITY OF LONDON LYING-IN-HOSPITAL, City-road.—Pathologist and Registrar.

CUMBERLAND COUNTY COUNCIL.—Three Assistant County Medical Officers. Salary £350.

DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.

DURHAM COUNTY HOSPITAL.—House Surgeon. Salary £120 per annum, with board and lodging.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN Shadwell, E.—Medical Officer to Casualty Department for six months. Salary at rate of £100 per annum, with luncheon and tea. Also House Physician. Salary at rate of £75 per annum, with board, residence, and laundry.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon. Salary £70 per annum, with board, washing, and lodging.

EGYPT, PUBLIC HEALTH DEPARTMENT.—Medical Officer, unmarried. Salary at rate of £600 per annum.

ESSEX EDUCATION COMMITTEE.—Medical Inspector. Salary £300 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House Surgeon for five months. Salary at rate of £75 per annum, with board, residence, and washing.

FAREHAM, HANTS COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £250 per annum, with apartments, board, washing, and attendance.

FRENCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Second Resident Medical Officer, unmarried. Salary £60 per annum, with full board and laundry.

HALIFAX ROYAL INFIRMARY.—Second House Surgeon and Third House Surgeon, unmarried. Salary £120 and £100 per annum respectively, with residence, board, and washing.

HAMPSHIRE COUNTY COUNCIL.—Two Assistant County Medical Officers of Health. Salary £300 per annum. Also Tuberculosis Officer. Salary £400 per annum.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £120 per annum, with rooms, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board, residence &c.

HOSPITAL FOR WOMEN, Soho-square, W.—Resident Medical Officer for six months. Salary at rate of £80 per annum.

HUDDERSFIELD, COUNTY BOROUGH OF.—Assistant Medical Officer of Health (female). Salary £250 per annum.

HULL ROYAL INFIRMARY.—Honorary Ophthalmic Surgeon.

KINGSTON, CANADA, QUEEN'S UNIVERSITY, MEDICAL FACULTY.—Two Assistant Professors. Salary in each case £300 per annum.

KING'S LYNN, WEST NORFOLK AND KING'S LYNN HOSPITAL.—House Surgeon. Salary £150 per annum.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LONDON FEVER HOSPITAL, Liverpool-road, N.—Assistant Resident Medical Officer. Salary £150 per annum, with residence and board.

LONDON HOMŒOPATHIC HOSPITAL, Great Ormond-street and Queen-square, Bloomsbury, W.C.—Physician to Hospital. Also Physician for Diseases of Children. Also Assistant Pathologist (Part-time). Salary £50 per annum.

LONDON LOCK HOSPITAL.—House Surgeon to Female Hospital, Harrow-road, W. Salary £100 per annum, with board, residence, and washing.

MACCLESFIELD GENERAL INFIRMARY.—House Surgeon. Salary £125 per annum, with residence, board, and laundry.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £250 per annum, with quarters, board, attendance, washing, &c.

MANCHESTER EAR HOSPITAL, Grosvenor-square, All Saints.—Assistant Anæsthetist. Salary £15 15s. per annum.

MANCHESTER, HULME DISPENSARY, Dale-street, Stretford-road.—House Surgeon. Salary £180 per annum, with apartments, attendance, &c.

MANCHESTER, MONSALL FEVER HOSPITAL.—Fourth Medical Assistant. Salary £130 per annum, with board, lodging, and washing.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MANCHESTER ROYAL INFIRMARY.—Medical Officer for Out-patients and Accidents to the Central Branch for six months. Salary at rate of £100 per annum, with board and residence.

MANCHESTER, TOWNSHIP OF SOUTH MANCHESTER HOSPITALS, West Didsbury.—Junior Resident Medical Officer. Salary £120 per annum, with rations, apartments, and attendance.

MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—Assistant House Surgeon. Salary at rate of £100 per annum first six months and £110 per annum afterwards, with board, apartments, washing, and attendance.

MIDDLESEX COUNTY COUNCIL, COMMITTEE FOR THE CARE OF THE MENTALLY DEFECTIVE.—Medical Officer. Salary £500 per annum.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.—Resident Medical Officer for six months. Salary at rate of £80 per annum, with board, residence, and washing.

NEWARK-UPON-TRENT HOSPITAL.—Resident Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and laundry.

NEWCASTLE-UPON-TYNE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Anatomy. Salary £200 per annum.

NEW ZEALAND, UNIVERSITY OF OTAGO.—Professor of Anatomy. Salary £800 per annum.

NORWICH, JENNY LIND HOSPITAL FOR SICK CHILDREN.—Female Resident Medical Officer for six months. Salary £50 per annum, with board, apartments, and laundry.

NOTTINGHAM, BAGTHORPE INSTITUTION AND INFIRMARY.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £165 per annum, with apartments, &c.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician for six months. Salary at rate of £100 per annum, with board, residence, and laundry. Also Locum Tenens for 13 weeks. Salary £4 4s. per week, with board, residence, and laundry.

NOTTS COUNTY COUNCIL.—Assistant Tuberculosis Officer. Salary £300 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

PADDINGTON INFIRMARY AND WORKHOUSE.—Second Assistant Medical Officer. Salary at rate of £140 per annum, with board, lodging, and washing.

PLAISTOW FEVER HOSPITAL, London, E.—Second Assistant Medical Officer, unmarried. Salary £100 per annum, with rooms and all found.

PORTSMOUTH WORKHOUSE INFIRMARY, WORKHOUSE, AND CHILDREN'S HOME.—Second Assistant Resident Medical Officer, unmarried. Salary £140 per annum, with apartments, rations, &c.

PRESTON, COUNTY ASYLUM, Whittingham, Lancs.—Junior Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, &c.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon and House Physician for six months. Salary at rate of £80 per annum each, with board, residence, and washing.

ROCHDALE INFIRMARY AND DISPENSARY.—Junior House Surgeon, unmarried. Salary £110 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL.—Senior and Junior House Surgeons. Salaries £150 and £100 respectively, with board, lodging, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Assistant Dental Surgeon.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Medical Registrar. Salary 100 guineas per annum. Also Additional Medical Officer to X Ray Department. Salary 25 guineas per annum.

ST. ALBANS, HERTS COUNTY ASYLUM, Hill End.—Second Assistant Medical Officer, unmarried. Salary £225 per annum, with board, lodging, and washing.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon and Casualty House Surgeon. Salary at rate of £80 per annum each, with board and residence. Also Honorary Physician and Honorary Assistant Surgeon.

SALFORD UNION INFIRMARY.—Senior Assistant Medical Officer and Assistant Medical Officer, unmarried. Salaries £200 and £150 per annum respectively, with apartments, attendance, and rations.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £75 per annum, with apartments, board, lodging, and washing.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Assistant House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

SHEFFIELD ROYAL INFIRMARY.—Ophthalmic House Surgeon for six months. Salary £80 per annum, with board and residence.

SHEFFIELD UNION HOSPITAL, Firvale.—Resident Assistant Medical Officer, unmarried. Salary £180 per annum, with apartments, rations, &c.

SHREWSBURY, SALOP INFIRMARY.—House Physician. Salary at rate of £90 per annum, with board and apartments.

SOUTHPORT COUNTY BOROUGH EDUCATION COMMITTEE.—Medical Gentleman to operate upon cases of Enlarged Tonsils and Adenoids occurring amongst Children attending the Elementary Schools in the Borough. Salary £1 1s. per case.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Second Assistant Medical Officer and Third Assistant Medical Officer. Salary £170 and £160 per annum respectively, with board, lodging, and washing.

SUNDERLAND ROYAL INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, residence, and laundry.

SWANSEA GENERAL AND EYE HOSPITAL.—Two House Surgeons. Salary £125 per annum, with board, washing, and attendance.

UNIVERSITY OF LONDON, KING'S COLLEGE.—Demonstrator of Physiology. Salary £120 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL.—Junior House Physician and Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, and washing.

WESTERN OPHTHALMIC HOSPITAL, Marylebone-road, W.—Honorary Anæsthetist. Salary £25 per annum.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two Assistant Anæsthetists.

WESTMINSTER HOSPITAL.—Assistant House Physician and Assistant House Surgeon. Board provided in each case.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary £170 per annum, with board, apartments, and washing. Also Junior House Surgeon. Salary £150 per annum, with board, apartments, and washing.

WOLVERHAMPTON EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary at rate of £300 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Salary £120 per annum, with apartments, board, and laundry.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £140 per annum, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

LATHBURY.—On May 11th, at Chipperfield, King's Langley, the wife of Captain E. B. Lathbury, R.A.M.C., of a daughter.

MARRIAGES.

WROUGHTON—STUART.—On April 2nd, at Howick, Natal, John Henry Wroughton, M.R.C.S., L.R.C.P., to Ethel Susan, daughter of G. B. N. Stuart, late D.I., R.I.C., Kingstown, Dublin.

DEATHS.

BUSTEED.—On April 27th, at "Tregare," 37, Hawke-road, Upper Norwood, Brigade-Surgeon William John Busteed, M.D., late Indian Army, aged 78.

THORBURN.—On April 28th, at Canton, China, by accident, John Melland Thorburn, aged 25, eldest son of William Thorburn, F.R.C.S., of 2, St. Peter's-square, Manchester.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE ETHICS OF EXPERIMENT ON HUMAN BEINGS.

THE following advertisement appeared recently in a lay newspaper: "Young man, strong, offers himself to any doctor for experimental purposes." Such an offer opens up the question as to whether experiments can rightly be made under these conditions, and whether ethical justice would sanction for either party an agreement of this character. In the case of the volunteer subject the question arises as to what extent natural right may allow him to permit injury to be voluntarily inflicted upon him for any other purpose than his own personal benefit, or as an act of self-devotion to the immediate necessity of some other person, as, for instance, in the case of transfusion of blood. Self-experimentation within well-defined limits may under certain circumstances be legitimate, and, as is well known, several investigators have practised it with a specific end in view. Section of the superficial radial nerve at the wrist, for instance, has been done, and has, we suppose, added to the sum total of knowledge. More daring have been certain inoculations from which some experimenters have observed the effects on themselves and others, and some of these investigations have unfortunately been fatal. The risk undertaken in his own person, however, by a competent scientific investigator seeking the solution to some definitely formulated problem to which a chain of previous research has led up, or by one of those associated with him in his work, who is actuated not by personal gain but purely by a scientific enthusiasm and devotion to duty (as was the case of those who voluntarily allowed themselves to be bitten by infected mosquitoes to settle the question whether these insects were or were not the transmitters of the disease, and for which they refused all pecuniary reward), stands on a very different footing from a mere gambling risk for the sake of gain and presumably without any special scientific interest or enthusiasm. But besides the ethical question there is a practical one for the experimenter who should accept such an offer as that advertised. There are, we know, degrees of danger in personal experiments, and there are, no doubt, many observations which could be carried out with little or no risk to the individual. But to what extent would an ordinary jury support the experimenter if the "subject" chose to bring an action for alleged damage, which might be wholly independent of the original investigation? There remains even yet a vague mass of opinion which still regards with suspicion any person who is suggested as "practising upon" anybody. For long this sentiment, which after all has its basis in strong common-sense, militated against the hospitals; and there is little doubt that a jury would require strong proof of innocence on the part of the experimenter, even in the face of the supposed written agreement between the parties concerned. The distinction between *post hoc* and *propter hoc* would be difficult to establish convincingly. Common-sense would be against both parties, but whilst some sympathy might be shown to the scientist, this would possibly be counterbalanced by the feeling that he was taking advantage of a weaker brother, though such weakness were shown only by the nature of the undertaking he had made himself responsible for. The law is jealous of the sanctity of the person, the *corpus*, and it is questionable whether any responsible scientific investigator would be willing to enter into an agreement fraught with such possibilities.

THE EXCRETION OF PHENOL.

IN discussing a recent case of carbolic acid poisoning in the pages of the *Dublin Journal of Medical Science* for May, 1914, Dr. Walter G. Smith takes occasion to review the mode of excretion of this substance and the tests applicable for its recognition. Like other aromatic bodies it has a tendency to combine with the sulphate radicle and with glycuronic acid, and to be excreted in the urine in one or other combination. The salt resulting from the former affinity is potassium phenyl-sulphate, isomeric with a sulphocarbolate, and as the phenyl-sulphate salts of barium are soluble in water it follows that they give no precipitate with barium chloride; hence it has sometimes been erroneously stated that in carbolic acid poisoning the sulphates disappear from the urine. The phenyl-sulphates are less toxic than carbolic acid, and the sulphate radicle thus serves as a protective body. Hence the administration of soluble sulphates is indicated in cases of poisoning, and experiments on animals prove them to have remarkable antidotal power. A comparatively small proportion of the phenol is excreted in combination with glycuronic acid, the resulting salt having some reducing power, while minute amounts also appear as pyrocatechin and hydroquinone, the colour-changes characteristic of the urine in these cases of poisoning being due to the presence of these substances. Beside the familiar violet reaction with liquor ferri perchloridi, the three main tests for phenol are the formation of a white precipitate of tribromphenol on addition of bromine water (Landolt's test); a rose-red colour with Millon's reaction, common to many hydroxyl derivatives of benzene (Plugge's test); and a blue colour on warming with ammonium hydrate, and adding bromine water (Berthelot's test) due to formation of indophenol.

A CASE OF BEE-STING.

To the Editor of THE LANCET.

SIR,—I should be glad if some of your readers could give me some information on the following matter. A few days ago I was called to see a man who had been stung on the forearm just over one of the superficial veins by a bee. I saw him less than half an hour after he had been stung, and found him covered from head to foot with a scarlatiniform rash which he said itched intolerably. The patient described the irritation as being like "pins and needles being stuck into him." The site of the sting had already been treated with weak ammonia. The temperature was normal, pulse full and bounding, rate 90 per minute, the tongue very dry and of a brownish colour. The patient complained of great thirst. I gave him some weak lead lotion for external application and an alkaline mixture. Three hours later I saw him again. The irritation had almost entirely abated, the tongue was moister and cleaner, and the thirst much diminished. The rash had practically disappeared. The patient had vomited about an hour after I saw him first. The pulse was now 76. At 4 o'clock next morning he was feeling sufficiently well to ride round the motor cycle racecourse and spend the rest of the morning attending to his machine. I saw him about midday and he said he felt all right except that he "thought he had a high temperature." His temperature, however, was normal and he had no further symptoms. He is accustomed to handling bees, and has often been stung before. I should be glad to know what the cause of these sudden acute and transitory symptoms is. According to Quain's Dictionary, 1895 edition, symptoms of this sort are not uncommon but appear to last longer than in this case. No information is given as to the cause. Perhaps one of your readers who is a bee expert can give me some information.

I am, Sir, yours faithfully,

LAWRENCE PICK.

Ballaugh, Isle of Man, May 22nd, 1914.

APRIL AT HOME AND ABROAD.

A CORRESPONDENT in British Columbia sends us the following note on the weather conditions in Western Canada during last month: "Perhaps you will print this, although it may be too late for your monthly report of the weather at home and abroad, for the Empire is world-wide, and so are the interests and readers of THE LANCET. In British Columbia the April weather was anticyclonic. Kamloops, in the interior, had temperatures varying between 78° and 25° F. Vancouver, on the lower mainland, had an average temperature of 50°, 155 hours of bright sunshine, and 3·30 inches of rain. Victoria, at the south end of Vancouver Island, had an average temperature of 51° (varying between 64° and 35°), 178 hours of bright sunshine (no day totally clouded), and 1·04 inches of rain; so the month's weather here was pleasant."

THE DANGEROUS PISTOL.

T. H. Spencer, a boy employed as a van-guard, was tried at the Old Bailey recently for the manslaughter of a girl 15 years of age and acquitted of that charge It was proved that in pulling a pistol out of his pocket in the street he discharged it, killing the child, who at the time was walking away from him. In these circumstances it was hardly to be expected that the lad would be convicted of felony, but the case should serve as a warning to others like him, and should impress on the public mind the dangerous nature of toys of this class. The weapon was one not subject to the Pistols Act, and so could be sold without the formalities required by that not over stringent statute. The evasion practised by traders in this instance is a simple one, and may indeed be said to be invited by a definition of a "pistol," which limits it for the purposes of the Act to one with a barrel 9 inches in length. Anyone who recalls the weapon once more or less familiar to schoolboys as a "saloon pistol" will realise that an extra ½ inch in the barrel does not make such a firearm materially less easy for a boy to carry or conceal, and

leaves it, as Mr. Justice Rowlatt defined it, a "confoundedly deadly weapon." It has been stated that the Home Secretary contemplates introducing legislation upon the subject of pistols, and it is to hoped that any new Act upon the subject will restrict and regulate the carrying or possessing of any such weapons without regard to the interests of traders or manufacturers.

CARBOLIC ACID INJECTIONS IN TETANUS.

To the Editor of THE LANCET.

SIR,—In the interesting description of a case of tetanus treated with injections of carbolic acid published in your last issue, Mr. Graham Reynolds omitted to state at what intervals the injections were given. I should be very grateful if he would supply this information, as it appears to me a treatment well worth a trial.

I am, Sir, yours faithfully,
Shoreham, Sussex, May 27th, 1914. F. CARDEN BRODIE.

R. B.—Our correspondent inquires "Whether, and if so on what ground, an Approved Society can refuse to pay sickness benefit to a member incapacitated from earning his living by an accident having no connexion with his work?" In two instances cited by our correspondent workmen have been refused sickness benefit after being injured by motor-cars when out at night for their own purposes. Presumably in these cases the benefit has been refused by the societies in accordance with Section II. of the Act, because the societies believe that the men are entitled to damages at common law from the persons responsible for their injuries, and that they are unreasonably neglecting to take proceedings to enforce their claims. Our correspondent is referred to the section mentioned.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.
THURSDAY.—4.15 P.M., Election of Officers for 1914-15. Clinical Meeting.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.
FRIDAY.—8 P.M., Members are invited to show Cases. 8.30 P.M., Paper:—Dr. J. F. H. Daily: Electro-Cardiography and its Clinical Application (illustrated).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.
TUESDAY.—4 P.M., Dr. G. A. Sutherland: Clinique (Medical). 5.15 P.M., Lecture:—Dr. C. O. Hawthorne: Some Visual Fields in Intracranial Disease.
WEDNESDAY.—4 P.M., Mr. J. M. G. Swainso: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. W. Hill: Prevalent Misconceptions Concerning the Œsophagus in Health and Disease.
THURSDAY.—4 P.M., Mr. A. H. Todd: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. A. McNab: Recent Advances in the Treatment of Glaucoma.
FRIDAY.—4 P.M., Mr. G. H. Whale: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. Dr. Owen: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin. 5 P.M., Lecture:—Mr. B. Harman: Concomitant Squint.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women and Diseases of the Eye. 5 P.M., Lecture:—Mr. B. Harman: Paralytic Squint.
THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 10 A.M., Dr. Simson: Gynæcological Demonstration. 12 noon, Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye. 5 P.M., Lecture:—Mr. B. Harman: Congenital Cataract.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Applied Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin. 5 P.M., Lecture:—Mr. B. Harman: Senile Cataract.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.
TUESDAY.—Out-patient Demonstrations:—10 A.M., Dr. C. B. Zundel: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine. 4.15 P.M., Sir Malcolm Morris: Skin.
WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. H. B. Carilli: Medical. Mr. Cecil Rowntree: Surgical. 11 A.M., Mr. R. B. Bickerton: Eye.—2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 4.30 P.M., Mr. C. O. Choyce: Surgery. 4.30 P.M., Special Lecture:—Mr. C. C. Choyce: Some Tumours of Bone.
THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. H. R. Prentice: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Bigg: Throat, Nose, and Ear.—2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. Dr. A. Davies: Pathological Demonstration. 3.15 P.M., Dr. R. Wells: Medicine. 4.30 P.M., Special Lecture:—Prof. R. T. Hewlett: Infective Endocarditis, its Causation and Results.
FRIDAY.—Out-patient Demonstrations;—10 A.M., Dr. C. B. Zundel: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Sir John Rose Bradford; Medicine. 3.15 P.M., Mr. L. McGavin: Surgery.
SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. H. R. Prentice: Medical. Mr. Cecil Rowntree: Surgical. 11 A.M., Mr. R. B. Bickerton: Eye.—10 A.M., Col. Barry: Radiography.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. R. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Gynæcological (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).
TUESDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Nose, Throat, and Ear (Mr. H. D. Gillies). X Ray and Electrical Methods (Dr. Metcalfe). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. Dorell).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. B. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson); X Rays and Electrical Methods (Dr. Metcalfe).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. R. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, Medical School, City-road, E.C.
MONDAY.—1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Cardiac Department, Dr. Stott; Out-patient Department, Dr. Phear, Dr. S. Thompson. 3 P.M., Wards, Dr. Phear.
TUESDAY.—9 A.M., Laryngological Department, Mr. Mant. 1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Out-patient Department, Dr. M. Leslie, Dr. B. King; Operations, Mr. A. Evans. 3 P.M., Wards, Dr. White. 4 P.M., Wards, Dr. M. Leslie
WEDNESDAY.—2 P.M., Wards, Dr. A. Davies; Out-patient Department, Dr. Drysdale, Dr. Kellie. 4 P.M., Wards, Dr. Drysdale. 4.30 P.M., Roentgen Ray Department, Dr. Jordan.
THURSDAY.—9.30 A.M., Dental Department, Mr. G. Thomson. 10 A.M., Cardiac Department, Dr. Stott. 1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Out-patient Department, Dr. Phear, Dr. S. Thompson. 4.30 P.M. Laryngological Department, Mr. Mant.
FRIDAY.—1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Wards, Dr. Calvert; Out-patient Department, Dr. M. Leslie, Dr. B. King. 5 P.M., Lecture-Demonstration:—Mr. Mant: The Larynx in Relation to Tuberculosis.
SATURDAY.—10 A.M., Out-patient Department, Dr. Drysdale, Dr. Kellie. 11.30 A.M., Roentgen Ray Department, Dr. Jordan.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.
Course of Lectures on Tuberculosis for Post-Graduates and Senior Students:—
TUESDAY.—4 P.M., Dr. H. L. Tidy: Relation of Tuberculosis to Other Conditions, including Pregnancy.
WEDNESDAY.—2 P.M., Dr. W. J. Hadley: Diagnosis. 4 P.M., Dr. P. Kidd: Prognosis.
THURSDAY.—11 A.M., Dr. J. H. Sequeira: Cutaneous Tuberculosis. 4 P.M., Dr. F. J. Smith: Medico-Legal Aspects.
FRIDAY.—2 P.M., Dr. W. J. Hadley: Pleurisy. 4 P.M., Dr. C. Wall: Environment.

GUY'S HOSPITAL MEDICAL SCHOOL, London Bridge, S.E.
Course of Lectures on Industrial Medicine:—
FRIDAY.—Lecture V.:—Dr. F. Shufflebotham: Anthrax.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY.—4.30 P.M., Lecture:—Dr. Inman: The Technique of the Complement-fixation Test Applied to Tuberculosis.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.
Course of Demonstrations for Post-Graduates:—
FRIDAY.—4 P.M., Dr. G. Lyon: Demonstration of Cases under Treatment.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. K. Wilson: Tics.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. K. Wilson: Torticollis.

THE THROAT HOSPITAL, Golden-square, W.
MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

LONDON LOCK HOSPITAL, 91, Dean-street, Soho, W.
Special Course of Instruction in Venereal Diseases, for Post-Graduates and Students, with Practical Demonstrations of the Various Methods of Treatment:—
MONDAY.—Clinics:—1 P.M., Mr. Ryall; 6 P.M., Mr. Gibbs.
TUESDAY.—Clinics:—2 P.M., Mr. Lane; 6 P.M., Mr. Paterson.
WEDNESDAY.—Clinic:—6 P.M., Mr. Shillitoe. 5 P.M., Lecture:—Dr. Phillips: Visceral Syphilis.
SATURDAY.—Clinic:—2 P.M., Mr. McDonagh.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
FRIDAY.—9 P.M., Prof. W. H. Bragg: X Rays and Crystalline Structure.

For further particulars of the above Lectures, &c., see Advertisement Pages.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced.

In 1914:—
May 1st–Nov. 1st (Lyons).—International Town Hygiene Exhibition.
,, 15th-Oct. 15th (Berne).—Swiss National Exhibition.
May–October (London, Shepherd's Bush).—Anglo-American Exposition.
June 1st-5th (Berlin).—Third Congress of the International Urological Society.
,, 8th-10th (Berne).—Seventh International Dairy Congress.
,, 9th-12th (Birmingham).—National Council of Nurses' Annual Conference and Nursing Exhibition.
,, 15th-18th (Portsmouth).—International Abolitionist Conference (Prostitution).
,, 18th-20th (Newcastle-upon-Tyne).—Fifth Annual Conference of the British Hospitals Association.
,, 18th-24th (London, Church House, Westminster).—International Conference on the Blind.
June-July (Groningen).—University of Groningen 300th Anniversary Celebration.
July 2nd and 3rd (Liverpool).—National Conference on Infant Mortality.
,, 6th-11th (Blackpool).—Twenty-ninth Congress of the Royal Sanitary Institute.
,, 7th-10th (St. John, N.B.).—Canadian Medical Association.
,, 8th-10th (Oxford).—Ophthalmological Congress.
,, 15th-20th (Edinburgh).—Congress of the Royal Institute of Public Health.
,, 21st-23rd (Chester).—British Pharmaceutical Conference.
,, 27th-31st (London).—Fifth Annual Session of the Clinical Congress of Surgeons of North America.
,, 28th-31st (Aberdeen).—Eighty-second Annual Meeting of the British Medical Association.
Aug. 3rd–8th (London).—Sixth International Dental Congress.
,, 10th-15th (St. Petersburg).—Twelfth International Congress of Ophthalmology.
Sept. 7th–12th (Berne).—International Congress for Neurology, Psychiatry, and Psychology.
,, 10th-12th (Fort William and Port Arthur, Ontario).—Fourth Annual Congress of the Canadian Public Health Association.
,, 21st-26th (Victoria, B.C.).—Dominion Exhibition.
,, 21st-26th (Vienna).—Third International Congress on Diseases of Occupation.
,, 30th-Oct. 4th (Brussels). Fourteenth French (de langue française) Congress of Medicine.
Oct. 31st-Nov. 2nd (Berlin).—First Congress of the International Society for Sexual Research.
Nov. 15th-21st (London).—Health Week. (Under the direction of the Health Week Committee appointed by the Royal Sanitary Institute.)
(St. Petersburg).—Third Mendeléeff Congress of Pure and Applied Chemistry and Physics.

In 1915:—
May 31st–June 5th (London, South Kensington).—Sixth International Congress of Social Work and Service.
Sept. 8th (begins) (Manchester).—Meeting of the British Association.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rates of pay, including allowances, is less than Rs.50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—MESSRS. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 27th, 1914.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 21	30·29	S.	...	127	80	59	59	66	Fine
,, 22	30·19	N.W.	0·30	124	80	57	59	64	Fine
,, 23	29·83	S.W.	0·16	113	67	59	61	63	Overcast
,, 24	30·16	N.E.	0·03	101	56	47	51	54	Cloudy
,, 25	30·29	N.E.	...	115	56	43	44	49	Cloudy
,, 26	30·19	NNE	...	107	56	41	43	48	Cloudy
,, 27	30·18	N.E.	...	113	60	42	46	52	Cloudy

The following magazines, journals, &c., have been received:—Cornhill Magazine, Albany Medical Annals, British Journal of Dermatology, Bulletin de la Office International d'Hygiène Publique, Pacific Medical Journal, Revue d'Hygiène, Canadian Practitioner and Review, Journal d'Urologie, American Journal of Tropical Diseases and Preventive Medicine, Ophthalmology, Archives of Internal Medicine, Memoirs of the Department of Agriculture in India, Calcutta Medical Journal, New Zealand Medical Journal,

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Dr. E. L. Ash, Lond.; Messrs. Armbrecht, Nelson, and Co., Lond.; Captain A. C. Amy, R.A.M.C., Trawsfynydd; Dr. H. de M. Alexander, Kingsoat; Dr. M. Ap Iwan, Junin; Asylums and Mental Deficiency Committee, Lond., Clerk of; A. S.; Messrs. Arnold and Sons, Lond.; Dr. F. S. Arnold, Bovingdon; Anglo-American Pharmaceutical Co., Croydon.

B.—Dr. R. B. Blair, Bradford; Mr. G. W. Badgerow, Lond.; Messrs. A. Bishop, Lond.; Messrs. Blades, East, and Blades, Lond.; Bournemouth Education Committee, Secretary of; Messrs. W. H. Bailey and Sons, Lond.; Mr. E. Bougault, Paris; Messrs. Burroughs Wellcome and Co., Lond.; Baden-Baden Spa, London Manager of; Baxter's Advertising Agency, Lond.; Sir George T. Beatson, Glasgow; Sir John Rose Bradford, Lond.; Mr. F. J. C. Broome, Buxton; Messrs. John Bale, Sons, and Danielsson, Lond.; Dr. Edward R. Baldwin, Saranac Lake; Birkenhead Borough Hospital, Secretary of; Messrs. Brand and Co., Lond.; British Drug Houses, Lond., Managing Director of.

C.—Dr. L. G. Cole, New York; Messrs. T. Christy and Co., Lond.; Mr. H. A. Collins, Croydon; Dr. F. de Coquet, Bordeaux; Messrs. Clement Talbot, Lond.; Dr. J. B. Christopherson, Vienna; Chesterfield Hospital and Dispensary, Secretary of; Cambridge University, Secretary of; Casein, Ltd., Lond.; Messrs. Cassell and Co., Lond.; Dr Abdy Collins, Epsom; Corbett Estate Office, Droitwich, Secretary of; Dr. B. J. Courtney, Carnarvon; Central London Throat and Ear Hospital, Lond., Secretary of; Dr. John Campbell, Belfast; Mr. A. L. Clarke, Lond.

D.—Messrs. W. Dawson and Son, Lond.; Messrs. Davies and Co., Lond.; Derby County Asylum, Mickleover, Clerk to the; Duff House, Banff, Secretary of; Messrs. Doughty and Co., Lincoln; Sir H. Bryan Donkin, Lond.; Mr. P. J. Drought, Ilford; Dr. J. H. Donnell, Hinckley; Messrs. Dale, Reynolds, and Co., Lond.; Messrs. F. Davidson and Co., Lond.

E.—Messrs. Elgood and Co., Lond.; Dr. William Ewart, Lond.; Dr. Gustaf Edholm, Lond.; Edgar Allen Institute, Sheffield, Secretary of; Mr. J. M. G. Ewing, Kingstown.

F.—Dr. R. S. Frew, Glasgow; Messrs. Frowde and Hodder and Stoughton, Lond.; Miss F. L. Fuller, Lond.; Federation of British Health and Holiday Resorts, Lond., Secretary of; Mr. Walter Falla, Jersey; Dr. William Fletcher, Kuala Lumpur; Dr. Herbert French, Lond.; Farringdon General Dispensary, Lond., Secretary of.

G.—Dr. S. Guciardello, Vittoria; Dr. E. B. Gunson, Lond.; Dr. Alexander Goodall, Edinburgh; Captain Gamlen, I.M.S., Bath; Sir James F. Goodhart, Bart., Lond.; Dr. F. G. Gardner, Oxford; Dr. Albert Gresswell, Louth.

H.—Mr. R. Harris, Lond.; Messrs. C. J. Hewlett and Sons, Lond.; Hoffmann-La Roche Chemical Works, Lond.; H. S.; Dr. F. Gowland Hopkins, Cambridge; Hertfordshire, County Medical Officer of, Hertford; Holiday Homes Fund, Lond., Director and Secretary of; Hull Royal Infirmary, Secretary of; Dr. John P. Henry, Galway.

I.—*Iron and Coal Trades Review*, Lond., Editors of.

J.—Java-China-Japan Line, Hong-Kong; Jenner Institute for Calf Lymph, Lond.; Dr. F. Wood Jones, Lond.; J. H. R.

K.—Mr. Thomas H. Kellock, Lond.; Messrs. H. S. King and Co., Lond.; Kent County Lunatic Asylums Committee, Maidstone, Clerk to; Messrs. G. Kelly and Co., Lond.; Kent and Canterbury Hospital, Secretary of; King Edward VII.'s Hospital, Cardiff, Secretary of.

L.—Mr. P. P. Laidlaw, Lond.; Messrs. Lee and Martin, Birmingham; Mr. J. Light, Chicago; Mr. R. Muirhead Little, Lond.; Mr. R. Lake, Lond.; London Dermatological Society, Hon. Secretary of; Local Government Board, Lond., Medical Officer to; Dr. A. Goodman Levy, Lond.; Messrs. Lee and Nightingale, Liverpool; Mr. R. McC. Linnell, Kuala Lumpur.

M.—Mr. McDonagh, Lond.; Manchester Guardians, Clerk to the; Mr. R. Mosse, Berlin; Messrs. C. Mitchell and Co., Lond.; Manchester Ear Hospital Secretary of; Messrs. P. C. Millard and Co., Lond.; Manchester Northern Hospital, Secretary of; Major Mackelvie, I.M.S., Rampur Boalia; Mr. J. Murray, Lond.; Maltine Manufacturing Co., Lond.; Mr. J. Y. W. MacAlister, Lond.; Dr. F. MacCabe, Lond.; Mr. Arthur MacDonald, Washington; Mansion House Council on Health and Housing, Lond., Hon. Secretary of; Dr. C. B. Moss-Blundell, Huntingdon; Mr. H. Maynard, Lond.; M. F.; Messrs. F. Mundy, Gilbert, and Co., Birmingham; Macclesfield General Infirmary, Secretary of; Manchester Corporation, Medical Officer of Health of; Manchester Royal Infirmary, Secretary of; Medical Sickness and Accident Society, Lond., Secretary of; His Excellency Señor Don Alfonso Merry del Val, Lond.; *Midland Counties Herald*, Birmingham, Manager of.

N.—North Riding Asylum, York, Secretary of; National Provident Institute, Lond.; Messrs. Newman and Bond, Barnsley; North Lonsdale Hospital, Barrow-in-Furness; Nottingham Guardians, Clerk to the; Mr. Lionel E. C. Norbury, Lond.; National Land and Home League, Lond., Hon. Secretary of; Captain V. B. Nesfield, I.M.S., Banda; Mr. Arthur J. Nynbury, Perth; National Health Insurance Commissioners, Lond., Secretary of; National Society for the Prevention of Cruelty to Children, Lond.; Northern Association of Medical Women, Liverpool, Hon. Secretary of; National Sanatorium Association, Benenden, Secretary of.

O.—Sir Thomas Oliver, Newcastle-on-Tyne; Mr. J. Offord, Lond.

P.—Sir Isaac Pitman and Sons, Lond.; Mr. F. Pocklington, Lond.; Portsmouth Parish, Clerk to the; Preston County Borough, Secretary of; Mrs. Pye-Smith, Lond.; Dr. Perrin, Paris; *The Prescriber*, Edinburgh, Secretary of.

R.—Regulin Syndicate, Lond.; Messrs. Reynell and Son, Lond.; Mr. E. Halford Ross, Lond.; Mr. H. Betham Robinson, Lond.; Dr. Jacques Roux, Lausanne; Dr. R. R. Rentoul, Liverpool; Sir W. Ramsay, High Wycombe; Professor Leonard Rogers, I.M.S., Calcutta; Dr. Charles Read, Lond.; Royal Mineral Water Hospital, Bath, President and Committee of; Royal Commission on Venereal Diseases, Lond., Secretary of.

S.—Mr. A. C. Shoppee, Lond.; Major C. A. Sprawson, Lucknow; Messrs. Slatter and Rose, Oxford; Salford Union Infirmary, Clerk to the; Mr. F. W. Sears, Lond.; *The Southport Visitor*, Manager of; Messrs. F. C. Squire and Co., Lond.; Dr. F. W. Silk, Lond.; Messrs. G. E. Stechert and Co., New York; St. Thomas's Hospital Medical and Surgical College, Lond., Secretary of; South African Institute for Medical Research, Johannesburg, Director of; Sanitary Inspectors Examination Board, Lond., Hon. Secretary of; *South Wales Argus*, Newport, Manager of; Sheffield Union, Clerk to the; Mr. G. W. Spencer, Bristol.

T.—Sir StClair Thomson, Lond.; Dr. T. Seymour Tuke, Lond.

U.—Union Offices, Bishop Auckland, Clerk to the.

V.—Victoria Hospital, Burnley, Secretary of; Messrs. Van Alexander and Co., Lond.

W.—Major F. Winslow, R.A.M.C., Sheffield; W. R. C.; Messrs. J. Wright and Co.; Lond.; Dr. J. F. Ward, Manchester; Mr. P. d'Erf Wheeler, Lond.; Dr. C. Wynn Wirgman, Lond.; Mr. C. J. Webb, Lond.; Dr. R. C. Wingfield, Lond.; Warrington, Medical Officer of Health of; World's Insurance Congress, San Francisco, Commissioner of; Mr. J. Williams, Bradford; Wolverhampton Education Committee, Secretary of; Messrs. J. Wright and Co., Birmingham; Walsall and District Hospital, Secretary of; Dr. F. Parkes Weber, Lond.

Letters, each with enclosure are also acknowledged from—

A.—Dr. M. Aâñ, Abbassia; A. H. J.; Ardath Tobacco Co., Lond.; Mr. E. Arnold, Lond.; A. W. G.; Ancoats Hospital, Manchester; Ashwood House, Kingswinford; A. M. G.

B.—Mr. J. H. Busteed, Bungay; Bristol University, Registrar of; Mr. H. Bullock, Gillingham; Dr. D. J. Barrett, Bridgetown; Dr. B. N. Burgorgee, Rangoon; Messrs. G. Barker and Brettell, Birmingham; Dr. M. Burke, Skibbereen.

C.—Mrs. E. Coltman, Matlock; Mr. S. N. Chandhuri, Barpeta; Mr. Chapman, Montreal; Mrs. Carpenter, Oxford; C. S. T.; Coventry Education Committee, Secretary of; The Coppice, Nottingham.

D.—Dr. A. G. Denmark, Langenburg; Messrs. T. Dixon, Lond.; Devon County Asylum, Exminster, Clerk to the.

E.—Eccles and Patricroft Hospital, Secretary of; E. F.; E. S. C.

F.—Messrs. J. S. Fry and Son, Bristol.

G.—Dr. Gilbert, Tunbridge Wells; Greenock Infirmary, Secretary of; Mr. W. Gambling, Great Yarmouth; Mr. A. G. Granger, Cartersville, U.S.A.; Gravesend Hospital, Secretary of.

H.—Mr. E. M. Harvey, Lond.; Mr. C. E. Harris, Canterbury; Messrs. J. Heywood, Manchester; Mr. J. C. Hepton, Liverpool; Dr. H. W. Hills, Epsom.

I.—Ilford, Ltd., Ilford, Secretary of; Invernith Sanatorium, Colinsburgh, Medical Superintendent of.

J.—Dr. A. C. Johnson, Brecon; Jeyes Sanitary Compounds Co., Lond.

K.—K. S. C.

L.—Liverpool Parish, Secretary of; London School of Dental Surgery, Lond., Secretary of; Leeds Public Dispensary, Secretary of; Mr. H. K. Lewis, Lond.; Leith Hospital, Matron of; Miss Lloyd, Lond.; Messrs. Leslies, Lond.

M.—Manchester Victoria Memorial Jewish Hospital, Secretary of; Male Nurses' Temperance Co-operation, Lond., Secretary of; Mr. D. Maguire, Metheringham; Mr. C. M. Minier, Los Angeles; Dr. Mohr, Ottawa; Messrs. F. C. Moore and Co., Lond.; Manchester Hospital for Consumption, Secretary of; Dr. D. MacNish, Lond.

N.—Nottingham Education Committee, Treasurer to the; Newcastle-upon-Tyne Corporation, Treasurer to the; Nottingham General Hospital, Secretary of; Norfolk Education Committee, Norwich, Accountant to the; New Duff House Sanatorium, Banff, Secretary of.

P.—Portsmouth Lunatic Asylum, Miss L. Patourel, Crosby-upon-Eden; Portsmouth Guardians, Clerk to the.

R.—Dr. W. Roche, Dunchurch; Royal Orthopædic, &c., Hospital, Birmingham, Secretary of; Dr. F. C. Rorke, Herberton, Australia; Royal Devon and Exeter Hospital, Secretary of; Royal Eye Hospital, Lond., Secretary of; Royal Institute of Public Health, Lond.

S.—Colonel T. J. Smith, Stafford; Messrs. W. H. Smith and Son, Lond.; Captain Stott, I.M.S., Ootacamund; Dr. P. T. Spencer-Phillips, Chelmsford; Salford Royal Hospital, Secretary of; Mr. G. C. Stamper, Skegby; S. and M.; Mr. H. W. Scriven, Lond.; Mr. C. F. Scripps, Lond.; Surrey County Asylum, Merstham, Clerk to the; S. M. S.; Dr. D. Sherrard, Brighton.

T.—Mr. W. Thornburn, Manchester; Messrs. Thacker and Co., Lond.; Messrs. Tindall and Jarrold, Chelmsford.

U.—United Domestic Laundry Co., Sandgate.

V.—Mrs. Vevers, Worcester.

W.—Wolverhampton and Staffs General Hospital, Secretary of; Wolverhampton and Midland Counties Eye Infirmary, Secretary of; West Riding Asylums Board, Wakefield, Treasurer to the; Dr. S. A. K. Wilson, Lond.; Messrs. F. Williams and Co., Lond.; Western General Dispensary, Lond., Secretary of; West Herts Hospital, Hemel Hempstead, Secretary of.

Y.—Dr. F. C. Yorke, Edgeworthstown; Mrs. Yool, Lichfield.

Z.—Messrs. C. Zimmermann and Co., Lond.

EVERY FRIDAY.

THE LANCET.

PRICE SIXPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.*		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

* *The same rate applies to Medical Subordinates in India.*

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications	Five Lines and under £0 4 0
Official and General Announcements	
Trade and Miscellaneous Advertisements and Situations Vacant ...	Every additional Line 0 0 6
Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.	
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.	

Special Terms for Position Pages.